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Lutheran Clergymen, German Patriots, Twenty Sedges, a Pennsylvania College, a Yellow Oak and a Small Turtle: What's in a Name?

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Up through 1956 it was known to everyone as Muhlenberg's turtle, but common names commemorating individuals fell out of favor, and the committee overseeing the checklist of North American reptiles and amphibians gave *Clemmys muhlenbergii* a new common name. In many ways the new name, "bog turtle," is an unfortunate one, for only in a few places within the turtle's range does it actually inhabit true bogs. It is more a creature of stream-head sedge meadows, but for those familiar with its behavior perhaps "mole turtle" would have been the appropriate name. Since its original 1801 description by Schoepff, who named it *Testudo muhlenbergii*, this turtle has been placed in at least nine other genera by various authors. The specific epithet, *muhlenbergii*, unlike the common name and assigned genus, has survived. The close association of Muhlenberg's name with this turtle is a direct result of his giving a specimen to Schoepff, while Muhlenberg's discovery of the turtle in the first place is an indirect result of an odd sequence of events centering around the American Revolutionary War and a naturalist's obsession with obscure plants.

So who was this Muhlenberg guy? Gotthilf Hunrich Ernst Muhlenberg (1753-1815), the third son of Henry Melchin Muhlenberg, was a Lutheran minister. G. H. E. Muhlenberg, a self-taught botanist, termed by his contemporaries as the American Linnaeus, was personally responsible for the names of about 150 species of plants. His eastern Pennsylvania family was a prominent one. Henry M. Muhlenberg was German born and immigrated to America when called to do so by the Lutheran church of Pennsylvania. Eventually he came to oversee of all the Lutheran churches from New York to Maryland. He and his three sons were influential patriots throughout the Revolutionary War. The sons were born in New Providence (the town later became Trappe), Pennsylvania, but all were educated in Germany. John Peter Gabriel Muhlenberg, the oldest of the three, served under George Washington. He became a brigadier-general in the Continental army and led in a number of successful battles including the one at Yorktown. He was a close friend of Thomas Jefferson and James Monroe. Fredrick Augustus Conrad Muhlenberg, the second born, was a member of the Continental Congress and later the first speaker of the House of Representatives.

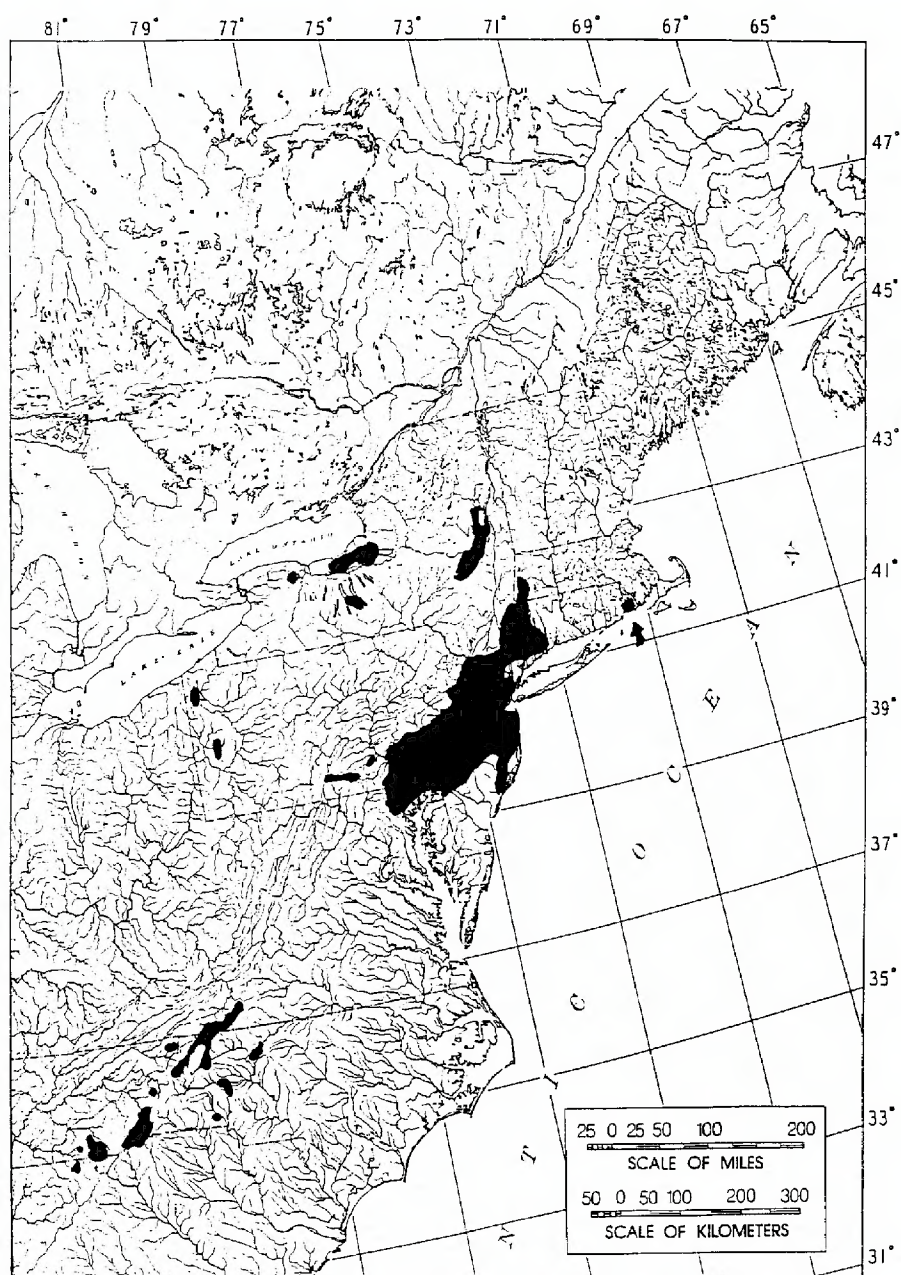
Gotthilf Henry Ernst Muhlenberg was the youngest of the three, and during the Revolutionary War, because of the prominence of his patriot brothers, was always in danger. Four days before the British occupation of Philadelphia he escaped what was almost certain death at the hands of the Tories. Disguised as an Indian and carrying a rifle under a blanket he left Philadelphia to join his family in New Providence. He was nearly caught and did not return to Philadelphia until after the British withdrawal in 1778.



G. H. E. (Henry) Muhlenberg, well-known 18th century botanist (print courtesy of Muhlenberg College).

It was during his temporary exile during the British occupation that Muhlenberg's interest in botany became serious. In the course of his studies he became acquainted with many eminent botanists of the period. He exchanged letters and specimens in the Americas and abroad. In fact, the centers of science were then mostly in western Europe and his exchanges with other botanists in England, Germany, France and Sweden are well-documented. Many of his specimens and notes still survive. After the war, Muhlenberg was visited by Dr. Johann David Schoepff, a well-known botanist who served as a military surgeon with the Hessian army. Schoepff made an extended tour of the eastern states searching for medical plants, and during his visit he compiled, and later published, a lot of Muhlenberg's information on local plants. This visit was during the period when Muhlenberg was deeply involved in a survey of the plants of Lancaster County, and it is likely that this is when Schoepff was given the turtle which was later named in Muhlenberg's honor.

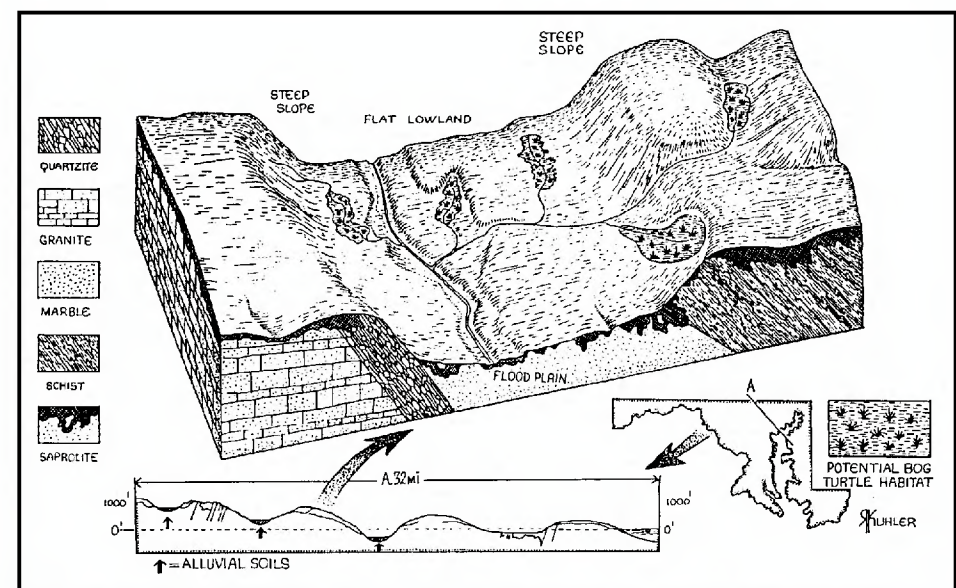
Muhlenberg's actual publications were few in number. In July 1785 he presented a paper titled "Flora Lancastriensis" to the American Philosophical Society. This along with a com-



Current distribution of the bog turtle, *Clemmys muhlenbergii*.

panion piece on a calendar of flowers, were never published. Only his "Index Flora Lancastriensis", which was intended as a tentative index to the never completed "Flora," and a supplement to the index completed five years later were published. Between the two publications they list nearly 1,400 species of plants. He planned a comprehensive North American Botany in which all American botanists could collaborate with their knowledge of the plants of their area. The first edition of such a work was eventually prepared by Asa Gray and was published in 1848. The preliminary basis for Gray's work had been published by Muhlenberg in 1813 as a list of all the known plants of America, both native ones and those which had become naturalized. Despite the limited amount that Muhlenberg actually published it is informative to see all the scholarly works that have resulted from Muhlenberg's efforts. Muhlenberg's studies occurred at the dawn of the heyday of natural history, and his collections and notes became benchmarks in plant taxonomy. The historical nature of his collections, and the number of taxa attributed to him, make his botanical studies some of the most important ones on the continent.

In addition to the fact that historic botanical nomenclature is not something that catches the public's interest, there were a number of reasons that Muhlenberg did not receive adequate credit for his contributions. In the early phases of his interest he was intrigued with mosses and lichens and his contributions were published by the European biologists with whom he corresponded. He spent a good part of his time assisting other scientists of the day, and as was typical of the time, they gave



Generalized 32-mile NE-SW cross-section through the Maryland piedmont (Baltimore and Carroll Counties) showing geologic and topographic units, and a profile of landforms. Note limited areas of alluvial soil and the patchy occurrence of potential bog turtle habitat.

him no credit for his contributions. Dr. Schoepff, for example, was given all of Muhlenberg's notes on herbs, but in his publication he does not even acknowledge knowing Muhlenberg. Similarly, Bigelow's *Medical Botany*, an important book in its day, failed to recognize Muhlenberg for his extensive contributions. Muhlenberg's publications contained few descriptions of the new plants he found, and his writings were primarily of a personal nature describing plant observations. His notations did not follow standard rules of nomenclature, but it should be recognized that these rules did not exist in Muhlenberg's time. Subsequently botanists rewrote many, but certainly not all of Muhlenberg's discoveries and credited him with the discovery. Had nomenclatural rules been available for him to follow, Muhlenberg would have received credit for even a larger number of the plants he discovered. G. H. E. Muhlenberg was but one of a number of famous clergymen-naturalists of the period (e.g., Gilbert White, John Bachman) whose contributions to the science of natural history were not fully appreciated until long after their death.

Muhlenberg's herbarium, his collection of pressed plants, was purchased three years after his death by his friends and given to the American Philosophical Society. It now resides in the Academy of Natural Sciences of Philadelphia where its curators regard it as one of the scientific treasures of America. Muhlenberg had begun to assemble the collection in the 1770s and it contains not just his collections, but many valuable specimens that he had exchanged with prominent botanists of the period both in America and Europe. For the curators who inherited the collection the information contained within was a gold mine of historic systematic riddles, numerous type specimens which needed designation, and other unresolved botanical issues. Recovering the information required considerable detective work. Specimen labels were cross-referenced with Muhlenberg's notes and complete and incomplete manuscripts. Muhlenberg's daily entries are in combinations of colloquial German, Latin and English and are intermixed with faithfully recorded details of the weather, household and church business, the state of the garden, the contents of his mail, and the comings and goings of friends and colleagues.

Muhlenberg is responsible for the names of a minimum of two genera and 143 species of vascular plants. Both genera

Table 1. Currently accepted vascular plant names with Muhlenberg (Muhl.) as author or as part author. Another 75 plants named by Muhlenberg are considered synonyms of other species. An asterisk (*) indicates a wetland Pennsylvania species. Modified from the Biota of North America program.

Genera with Muhlenberg as part of the author:	
Ericaceae	Copperbush, <i>Elliottia</i> Muhl. ex Ell.
Gentianaceae	*Screwstem, <i>Bartonia</i> Muhl. ex Willd.
Species with Muhlenberg as author or as part of the author:	
Asteraceae	*Purple-stem Beggarticks, <i>Bidens connata</i> Muhl. ex Willd. *Field Thistle, <i>Cirsium discolor</i> (Muhl. ex Willd.) Spreng. *Prairie Fleabane, <i>Erigeron strigosus</i> Muhl. ex Willd. Hairy Lettuce, <i>Lactuca hirsuta</i> Muhl. ex Nutt. Hairy Goldenrod, <i>Solidago hispida</i> Muhl. ex Willd. *Round-leaf Goldenrod, <i>Solidago patula</i> Muhl. ex Willd. Elm-leaf Goldenrod, <i>Solidago ulmifolia</i> Muhl. ex Willd.
Betulaceae	Seaside Alder, <i>Alnus maritima</i> (Marsh.) Muhl. ex Nutt.
Brassicaceae	Smooth Rockcress, <i>Arabis laevigata</i> (Muhl. ex Willd.) Poir. *Bulbous Bittercress, <i>Cardamine bulbosa</i> (Schreb. ex Muhl.) BSP. *Quaker Bittercress, <i>Cardamine pennsylvanica</i> Muhl. ex Willd. Carolina Pinelandcress, <i>Warea cueifolia</i> (Muhl. ex Nutt.) Nutt.
Caryophyllaceae	<i>Cerastium arvense</i> ssp. <i>velutinum</i> var. <i>villosum</i> (Muhl. ex Darl.) Hollick and Britt. *Long-leaf Starwort, <i>Stellaria longifolia</i> Muhl. ex Willd.
Cyperaceae	*Oval-leaf Sedge, <i>Carex cephalophora</i> (Muhl. ex Willd.) Sandy-woods Sedge, <i>Carex dasycarpa</i> Muhl. Cypress-knee Sedge, <i>Carex decomposita</i> Muhl. *Limestone-meadow Sedge, <i>Carex granularis</i> Muhl. ex Willd. *Porcupine Sedge, <i>Carex hystericina</i> Muhl. ex Willd. *Hop Sedge, <i>Carex lupulina</i> Muhl. ex Willd. Long-stalk Sedge, <i>Carex pedunculata</i> Muhl. ex Willd. *Woolly Sedge, <i>Carex pellita</i> Muhl. ex Willd. *Variable Sedge, <i>Carex polymorpha</i> Muhl. Reflexed Sedge, <i>Carex retroflexa</i> Muhl. ex Willd. *Burr-reed Sedge, <i>Carex sparganioides</i> Muhl. ex Willd. *Stalk-grain Sedge, <i>Carex stipata</i> Muhl. ex Willd. *Hairy-fruit Sedge, <i>Carex trichocarpa</i> Muhl. ex Willd. Warty Sedge, <i>Carex verrucosa</i> Muhl. Ribbed Sedge, <i>Carex virescens</i> Muhl. ex Willd. *Smooth Saw-grass, <i>Cladium mariscoides</i> (Muhl.) Torr. *Red-root Flat Sedge, <i>Cyperus erythrorhizos</i> Muhl. *Rufous Bulrush, <i>Scirpus pendulus</i> Muhl. *Few-flower Nut-rush, <i>Scleria pauciflora</i> Muhl. ex Willd. *Low Nut-rush, <i>Scleria verticillata</i> Muhl. ex Willd.
Ericaceae	Georgiaplume, <i>Elliottia racemosa</i> Muhl. ex Ell.
Fabaceae	Long-bract Wild Indigo, <i>Baptisia bracteata</i> Muhl. ex Ell. Hairy Small-leaf Tick-trefoil, <i>Desmodium ciliare</i> (Muhl. ex Willd.) DC. Large-bract Tick-trefoil, <i>Desmodium cuspidatum</i> (Muhl. ex Willd.) DC. ex Loud. Stiff Tick-trefoil, <i>Desmodium obtusum</i> (Muhl. ex Willd.) DC. *Veiny Vetchling, <i>Lathyrus venosus</i> Muhl. ex Willd. *Pink Fuzzy-bean, <i>Strophostyles umbellata</i> (Muhl. ex Willd.) Britt.

Table 1 (cont'd).

	Running Buffalo Clover, <i>Trifolium stoniferum</i> Muhl. ex Eat.
	*American Purple Vetch, <i>Vicia americana</i> Muhl. ex Willd.
Gentianaceae	
	*Twining Screwstem, <i>Bartonia paniculata</i> (Michx.) Muhl.
	*Yellow Gentian, <i>Gentiana alba</i> Muhl. ex Nutt.
Lamiaceae	
	*Cut-leaf Water-horehound, <i>Lycopus americanus</i> Muhl. ex W. Bart.
	Hairy Skullcap, <i>Scutellaria elliptica</i> Muhl. ex Spreng.
Onagraceae	
	*Downy Willowherb, <i>Epilobium strictum</i> Muhl. ex Spreng.
Orchidaceae	
	*Adam-and-Eve, <i>Aplectrum hyemale</i> (Muhl. ex Willd.) Torr.
	*Small White Lady's-slipper, <i>Cypripedium candidum</i> Muhl. ex Willd.
Poaceae	
	Woolly-sheath Three-awn, <i>Aristida lanosa</i> Muhl. ex Ell.
	Giant Cane, <i>Arundinaria gigantea</i> (Walt.) Muhl.
	*Hairy Woodland Brome, <i>Bromus pubescens</i> Muhl. ex Willd.
	*Smooth Crab Grass, <i>Digitaria ischaemum</i> (Schreb.) Schreb. ex Muhl.
	*Hairy Wild Rye, <i>Elymus villosus</i> Muhl. ex Willd.
	Meadow Love Grass, <i>Eragrostis refracta</i> (Muhl.) Scribn.
	*Atlantic Manna Grass, <i>Glyceria obtusa</i> (Muhl.) Trin.
	Rock Muhly, <i>Muhlenbergia sobolifera</i> (Muhl. ex Willd.) Trin.
	*Bog Muhly, <i>Muhlenbergia uniflora</i> (Muhl.) Fern.
	*Warty Panic Grass, <i>Panicum verrucosum</i> Muhl.
	*Autumn Blue Grass, <i>Poa autumnalis</i> Muhl. ex Ell.
	Salt-meadow Cord Grass, <i>Spartina patens</i> (Ait.) Muhl.
Rosaceae	
	Indian-physic, <i>Porteranthus stipulatus</i> (Muhl. ex Willd.) Britt.
Salicaceae	
	*Pussy Willow, <i>Salix discolor</i> Muhl.
	*Shining Willow, <i>Salix lucida</i> Muhl.
	*Bayberry Willow, <i>Salix myricoides</i> Muhl.
Ulmaceae	
	*Slippery Elm, <i>Ulmus rubra</i> Muhl.
Urticaceae	
	*Pennsylvania Pellitory, <i>Parietaria pensylvanica</i> Muhl. ex Willd.

Authors:

Ait. = William Aiton, 1731-1793
W. Bart. = William Bartram, 1739-1823
Britt. = Nathaniel Lord Britton, 1859-1934
BSP. = Britton, Sterns and Poggenburg
Darl. = William Darlington, 1782-1863
DC. = Augustin Pyramus de Candolle, 1778-1841
Eat. = Amos Eaton, 1776-1842
Ell. = Stephen Elliott, 1771-1830
Fern. = Merritt Lyndon Fernald, 1873-1950
Hollick = Charles Arthur Hollick, 1857-1933
Loud. = John Claudius Loudon, 1783-1843
Marsh. = Humphrey Marshall, 1722-1801
Michx. = Andre Michaux, 1746-1802
Nutt. = Thomas Nuttall, 1786-1859
Poir. = Jean Louis Marie Poiret, 1755-1834
Schreb. = Johann Christian Daniel von Schreber, 1739-1810
Scribn. = Frank Lamson-Scribner, 1851-1938
Spreng. = Curt Polycarp Joachim Sprengel, 1766-1833
Torr. = John Torrey, 1796-1873
Trin. = Carl Bernhard von Trinius, 1778-1844
Walt. = Thomas Walter, 1740-1789
Willd. = Carl Ludwig Willdenow, 1765-1812

Table 2. Accepted plant taxa named in honor of Muhlenberg. Another 57 taxa also named in honor of Muhlenberg are considered to be synonyms of other species. Modified from the Biota of North America program.

Asteraceae	Great Indian-plantain, <i>Arnoglossum muehlenbergii</i> (Schultz-Bip.) H. E. Robins.
Cyperaceae	Muhlenberg's Sedge, <i>Carex muehlenbergii</i> Schkuhr ex Willd. <i>Carex muehlenbergii</i> var. <i>enervis</i> Boott <i>Carex muehlenbergii</i> var. <i>muehlenbergii</i> Muhlenberg's Nut-rush, <i>Scleria muehlenbergii</i> Steud.
Fagaceae	Chinkapin Oak, <i>Quercus muehlenbergii</i> Engelm.
Gentianaceae	Monterey Centaury, <i>Centaurium muehlenbergii</i> (Griseb.) W. Wight ex Piper
Poaceae	Perennial Goober Grass, <i>Amphicarpum muehlenbergianum</i> (J. A. Schultes) A. S. Hitchc. Muhly, <i>Muhlenbergia</i> Schreb. (72 recognized species of grasses in this genus)
Polygonaceae	Sprawling Wireplant, <i>Muehlenbeckia axillaris</i> (Hook.) Walp. Maidenhair-vine, <i>Muehlenbeckia complexa</i> Meiss. Wirevine, <i>Muehlenbeckia hastula</i> (Sm.) I. M. Johnston.

Authors:

Boott = Francis Boott, 1792-1863
Engelm. = George Engelmann, 1809-1884
Griseb. = August Heinrich Rudolf Grisebach, 1814-1879
A. S. Hitchc. = Albert Spear Hitchcock, 1865-1935
Hook. = Joseph Dalton Hooker, 1817-1911
I. M. Johnston = Ivan Murray Johnston, 1898-1960
Meiss. = Carl Friedrich Meissner, 1800-1874
Piper = Charles Vancouver Piper, 1867-1926
H. E. Robins. = Harold Ernest Robinson, 1932-
Schkuhr = Christian Schkuhr, 1741-1811
Schreb. = Johann Christian Daniel von Schreber, 1739-1810
Schultz-Bip. = Carl (Karl) Heinrich 'Bipontinus' Schultz, 1805-1867
J. A. Schultes = Josef (Joseph) August Schultes, 1773-1831
Sm. = John Kunkel Small, 1869-1938
Steud. = Ernst Gottlieb Steudel, 1783-1856
Walp. = Wilhelm Gerhard Walpers, 1816-1853
W. Wight = William Franklin Wight, 1874-1954
Willd. = Carl Ludwig Willdenow, 1765-1812

and 68 of the species are still regarded as valid. The remainder have been reduced to synonyms and named varieties. One-hundred-twenty-nine (90%) of the vascular taxa are from Pennsylvania, while 111 (78%) represent wetland species. The number of mosses and lichens discovered by Muhlenberg are unknown, the published synonyms are outdated and the information has become generally unavailable. He was involved in numerous exchanges of notes, manuscripts and specimens. The botanists of the day were governed by a gentlemen's recognition of name priority which was difficult to maintain because publications with descriptions were often serendipitous. Furthermore, a good number of Muhlenberg's notes and reference specimens were unavailable to many European botanists because of revolutions on both sides of the Atlantic. Thus, the actual number of plants which Muhlenberg personally discovered is unclear and will probably never be known.

Approximately one-half of the vascular plants named by Muhlenberg are sedges, rushes and grasses. We know Lancaster County was his primary collecting area, but it is difficult to envision how far afield Muhlenberg's botanical interest may

have taken him. He thought nothing of walking from Lancaster to Philadelphia. One of his sons would later write that he considered that walk "a trifling feat."

Henry Muhlenberg, G. H. E. Muhlenberg's Americanized name, founded Franklin College and became its first president. He was also the co-author of a German-English and English-German dictionary. Ministerial duties did not suffer as a result of his political convictions, academic pursuits, or his interest in natural history. His career as a clergyman was as outstanding as his father's. After only four years of serving as his father's assistant he was appointed third minister at Philadelphia. In 1780 he became pastor of Trinity Lutheran Church in Lancaster, whose congregation he served until his death. Church archives tell of extensive repairs and additions to the church under his pastorate. Henry Muhlenberg was elected Secretary of the Ministerium of Pennsylvania six times and was its President for 11 terms.

Numerous honors were awarded to the minister-naturalist. In 1780 the University of Pennsylvania conferred upon him a degree in the Master of Arts and seven years later Princeton



Campus of Muhlenberg College, Allentown, Pennsylvania (the statue is of G. H. E. Muhlenberg's father). Photograph by T. F. Amico.

College awarded him a Doctor of Divinity. The most lasting honors, however, were from colleagues and friends. For example, F. L. Schreber, when naming a genus of grasses in Muhlenberg's honor, wrote that he had "... rendered immortal service to the natural history of North America, and especially to the knowledge of the plants of Pennsylvania and the other United States." Among the 87 currently recognized taxa named in honor of G. H. E. Muhlenberg are a genus of grass comprised of 72 species (*Muhlenbergia*), a sedge, a knotweed, a gentian, a willow, two lichens, two mosses, a fungus and a turtle. Another 57 species of vascular plants named for Muhlenberg are now considered as synonyms of other taxa. Muhlenberg College, founded in 1848, however, was named in honor of G. H. E. Muhlenberg's father. The college's first president, Dr. F. A. Muhlenberg, was the botanist's grandson.

It was Muhlenberg's interest in grasses and sedges that probably lead him to the discovery of the small undescribed turtle he gave to Schoepff. We know today that wet sedge meadows are the preferred habitat of *Clemmys muhlenbergii*. I can envision a muddy Muhlenberg on his hands and knees studying the lesser plants in these communities, recording the flowering phenology of known species, and collecting the ones that were new to him. Since he spent so much time in these habitats it was inevitable that he would encounter the rare, habitat-restricted, turtle. Schoepff did not include the locality of the turtle in his description of *Testudo muhlenbergii*, but based on Muhlenberg's plant collections, the type locality was later designated as "Lancaster County, Pennsylvania."

At the time Muhlenberg was collecting plants, the open



Bog turtle habitat — sedge meadow in early spring. Tussock sedges provide a key component of the turtle's spring habitat and often serve as nesting sites. Photograph by David S. Lee.

sedge meadows of Lancaster County, and those elsewhere in the Susquehanna Basin, were more extensive than they are today. They had been kept open by grazing and browsing deer, bison and elk, and in post-Pleistocene times, other large mammals that were killed off by early Native Americans. John Donelson in his 1780 journal noted that in Pennsylvania "The open space around and near the sulfur or salt springs, instead of being an 'old field' as had been supposed by Mansker, at his visit here in 1769, was thus free from trees and underbrush by the innumerable herds of buffalo and deer and elk that came to these waters." These clearings are responsible for place names such as Clearfield, Pennsylvania. We know from Thomas Seton that large numbers of bison and a few elk were still present in the mid-1700s in nearby Snyder County, Pennsylvania. Historically natural salt licks along the Susquehanna River were known to be heavily used by elk. Elk were once so numerous in this area that one naturalist reported that "leading to the licks the paths of these animals were so large as many of the great public roads of our country." These historical observations would suggest that wet meadows, their plant associates, and bog turtles were more common and widely distributed in the region in Muhlenberg's time than they are today.

It seems odd that an amateur botanist working 200 years ago, and writing in German, would have such an impact on modern-day American plant systematics, and that a turtle he first found would end up on the U.S. Fish and Wildlife Service's list of threatened species, becoming the key subject of numerous court cases on illegal wildlife trafficking. And it is ironic that Muhlenberg's chance encounter with the turtle, one resulting from his need for sanctuary during British occupation, has probably given his family name more modern-day recognition than did the collective prestigious careers of H. M. Muhlenberg and his three sons. The turtle Muhlenberg found, because of its modern-day rarity, has become the center of major land conservation efforts by The Nature Conservancy and others. It is interesting that many of the "lesser" wetland plants Muhlenberg discovered and named are now indirectly protected because of their close association with this very species of turtle. Even though the concept of specific habitat associations was undeveloped in Muhlenberg's time, in modern times they eventually united plant and animal protection strate-

gies with land acquisition, just as they had brought the botanists to discover the turtle two centuries ago.

Years back, on a field trip to the Eastern Shore of Maryland with Elmer Worthley's botany class, we all found shade under a large oak growing on the bank of the Pocomoke River at Milbourne Landing State Park. It was a typical class, we sat and listened as Elmer spent the better part of an hour looking through his hand lens at lichens, mosses and grasses lecturing us with the type of botanical trivia concerning inconspicuous plants which would have enthralled Muhlenberg. Eventually, after he finished with all the sundry mosses growing about its base Professor Worthley got to the tree, pointing out that the tree itself was a chestnut oak, an uncommon species of yellow oak named in honor of Henry Muhlenberg—*Quercus muehlenbergii*. Elmer's attention to the most insignificant of the most lowly plants and pointing out this tree brought both Muhlenberg and turtles to mind, and as the afternoon wore on, and the lecture droned on, my thoughts wandered to pre-teenage days

when my interest in reptiles was first developing. A time when the rarest of the four species of *Clemmys* was still referred to as the Muhlenberg's turtle. Back then the turtle's name, while distinctive, had no meaning to me, and was only regarded as a word that seemed quite weighty for so small and secretive a creature.

Acknowledgements

I thank Dan Klem, Jr., Muhlenberg College, for locating several of the references cited below. (Strange is the fact that I can communicate with a colleague in Pennsylvania by just typing his name and "@muhlenberg.edu" on a keyboard.) John Kartez and Amy Farstad, University of North Carolina, helped prepared a current list of plant names associated with G. H. E. Muhlenberg from which the plant totals provided here were derived. R. Kuhler prepared the figure illustrating the location of bog turtle sites in the Maryland landscape.

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**Book Review: *Reptile and Amphibian Culture:*
Proceedings of the 1997 International Herpetological Society's Symposium
edited by Alan J. Wilkie, published by the International Herpetological Society
1998. ISBN 1-897965-09-5. 96 pp., 48 color plates and two line drawings.
[List US\$17.95, available to CHS members at 20% off from Zoo Book Sales]**

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Scotland

Symposium reports are by their very nature mixed bags and while the attending audience may well have enjoyed excellent talks, the written accounts often fall well short of the mark. However, this is certainly not the case here and this volume contains much that will be of interest to a wide range of herpetologists. The articles include:

- "Herpetoculture of Venomous Snakes" by Paul Rowley
- "The Herpetoculture of Dendrobatid Frogs at the National Aquarium in Baltimore" by Sandra Barnett
- "The Monitor Family" by Bernd Eidenmüller
- "Unusual Colour Morphs of Pythons" by Bob Clark
- "The Herpetoculture of Neotropical Arboreal Lizards at the National Aquarium in Baltimore" by Sandra Barnett
- "Conservation of the Antigua Racer *Alsophis antiguae*: The Captive Component" by Richard Gibson.

Without disparaging the other accounts the two substantial contributions by Sandra Barnett of the National Aquarium in Baltimore are simply superb. They are highly detailed and would readily fulfil the requirement of primary references for anyone wishing to study these animals. In particular, mention should be made of the 20-page paper on arboreal lizards which contains information that is just not available elsewhere; this paper includes a list of references with over 60 entries! Specifically this covers iguanian lizards of the families Corytophanidae and Polychridae, of which there are more than 300 species endemic to the Neotropics. They are poorly represented in zoological collections as they are generally considered to be shy and difficult subjects for the vivarium. Nevertheless these animals are of great interest and striking appearance. If you require further proof take a look at the cover of this report which shows a group of hatchling helmeted iguanas (*Corytophanes cristatus*); it is a scene worthy of "Jurassic Park." The article on dendrobatids is a concise summary of the captive care of these frogs and contains a comprehensive list of references including the culture of live food. The article is illustrated with glorious color plates by George Grall.

Richard Gibson of the Jersey Wildlife Preservation Trust provides an interesting account of the conservation and captive breeding of the Antigua racer, *Alsophis antiguae*, arguably the world's rarest snake with only 50–70 specimens remaining in the wild. This is conservation in action and a refreshingly upbeat story of success in a field which so often is a litany of pious woe. Bernd Eidenmüller's article on monitor lizards concentrates on the subgenera *Odataria* and *Euprepiosaurus*. The author disarmingly admits that the reason he restricts his collection to the more diminutive species is quite simply that his apartment is not big enough to accommodate larger varanids and his bedroom! The article includes general information on the captive care of the genus plus specific information on breeding 11 forms.

Bob Clark's article on the commercial production of python color morphs is in fact a useful summary of large python breeding.

Finally Paul Rowley of the Liverpool School of Tropical Medicine is the herpetologist at the Alistair Reid Snake Venom Research Unit, which is home to the largest collection of venomous snakes in the UK. He gives a cursory account of some of the unit's activities and advance information on a new handling tool which has been designed for manipulating powerful and dangerous animals like the Neotropical rattlesnakes (*Crotalus durissus*). In truth there is little here that would be of value to anyone already involved with these animals.

This is an elegant book, beautifully illustrated with color plates throughout, well bound and astonishingly good value. The editor, Alan Wilkie, has done a superb job and produced a report that can hold its own with anything the rest of the world can muster.

Buy it while you can; it will not be available forever.

(This report refers to a meeting held in Walsall, England, in 1997 under the auspices of the UK-based International Herpetological Society.)

HerPET-POURRI

by Ellin Beltz

Ranavirus found in Australia, in snakes!

“Smuggled green pythons intercepted at Cairns airport in May [1998] were carrying a new virus that may have the potential to devastate Australia’s native reptiles, fish and amphibians. The Australian Quarantine and Inspection Service (AQIS) seized the 10 smuggled snakes as they were being brought into the country hidden in a man’s trousers. Two of the snakes died soon afterward and were sent to the CSIRO Australian Animal Health Laboratory (AAHL) in Geelong, Victoria, for testing. A team of AAHL scientists isolated a virus from both snakes that belongs to a group of viruses that cause disease in Australian fish and amphibians. ‘It’s possible that this virus, which hasn’t been identified in Australia before, could have seriously affected Australia’s valuable aquaculture industry as well as our wildlife,’ says Dr. Deborah Middleton of CSIRO Animal Health. ‘We know this type of virus can cause disease across a range of species, and survives well in the environment.’ AQIS Executive Director Paul Hickey says, ‘Australia’s geographical isolation protected us in the past, but rapid travel now makes us terribly vulnerable to exotic diseases. We should always remember that it’s often difficult to spot any signs of disease until the animals become seriously ill—and that’s too late to prevent infection of other animals.’ Two people were sentenced in a Cairns court . . . for their part [in all this].” Read more on <<http://www.healthnet.org/programs/promed.html>> and <<http://www.fas.org/promed>> [from Steve Grenard via James N. Stuart, October 6, 1998]

Algae linked to alligator deaths

GREENLines reports “. . . recent surges in the growth of algae and associated toxins may be causing a wave of alligator deaths in Florida. Many species of blue-green algae release chemicals toxic to the nervous system and liver of animals. Some scientists believe algae may also be linked to noncancerous tumors being found on sea turtles. The increase in algae has worsened in the past year and is caused by runoff of fertilizers, sewage and other nutrients into the water system. [October 23, 1998, from Roger Featherstone]

If you destroy it, they will go

“Sargassum sea weed is an essential component of the open-ocean ecosystem. It is particularly important to the survival of hatchling and posthatchling sea turtles, which are known to spend portions of the first year or more of their lives drifting in the sargassum rafts that gather in the Gulf Stream and circle the Atlantic. Sargassum also supports a diverse community of marine invertebrate and vertebrate species, some of which are only found in floating sargassum, by providing food and shelter from prey. In the last few years, commercial fishermen operating along the east coast of the United States have begun to harvest sargassum weed for use as a cheap additive to livestock feed. Until now, there have been no real regulations on the harvest of this important marine resource—despite ample evidence documenting the role sargassum plays in the survival of countless marine organisms. Fortunately, the governmental body that oversees commercial fishing regulations is considering implementing a complete ban on the harvest of sargassum—

before the commercial harvest gets out of hand. . . . Research has found that sargassum provides nearly 60 percent of the primary productivity in the upper three feet of the ocean and provides nutrients to organisms at deeper water depths as the older plants die and eventually sink. Sargassum plays a vital role in the early stages of life for hawksbill, green and loggerhead sea turtles. Once hatchlings reach the ocean from their nesting beach, they swim out to the floating mats of sargassum seaweed. The floating mats provide a wide variety of food and provide cover, helping to increase their chance of survival at this very vulnerable stage in life. It has been suggested by proponents of continued sargassum harvest that sea turtle hatchlings and other wildlife can be removed and released alive while the sargassum is collected. In addition to the fact that hatchling turtles and other small critters would be difficult to spot in the weed mats, even the released turtles would likely die without the food and shelter provided by the sargassum. For more information, please contact Dan Evans at (352) 373-6441 or <stsl@cccturtle.org>, website <<http://www.cccturtle.org>>, 4424 NW 13th Street #A1, Gainesville, FL 32609.” [from Alan Salzberg and Jim Harding]

Smile, crocodile!

According to the Associated Press, a popular Iraqi newspaper accuses Israeli spies of putting crocodile eggs into two lakes in northern Iraq. The *Babil* daily newspaper owned by Saddam Hussein’s oldest son, Odai Hussein, reports that the latest attack follows the release of “large quantities” of cobra snakes near Iraqi forces in the north. AP continues, “Northern Iraq is under the control of Kurdish factions helped by a no-fly zone enforced by U.S. and allied warplanes. Adnan Mufti, a representative of the Patriotic Union of Kurdistan, which controls the region around the lakes of Dokan and Darbandi Khan, called the report ‘silly and stupid propaganda.’ ‘How can one do that in lakes where thousands of our people live and eat from their fish?’ he said from Cairo, Egypt. [*Babil*] did not elaborate on the goal of the operation.” [from James N. Stuart, October 26, 1998]

You are what you respire

A new article on a positive association between pesticides and frog deformities is posted on <<http://www.abcnews.com/sections/science/DailyNews/frogs981106.html>> [from Gary Casper, Chair, Great Lakes Declining Amphibians Working Group, November 9, 1998]

Suit seeks to protect tortoise:

A press release from the Southwest Center for Biological Diversity announced that the center is suing the Department of Interior for failure to protect the threatened Mojave desert tortoise from grazing livestock. The release states, “[T]he tortoise is in a dangerous downward slide that is a result of criminally disgraceful mismanagement.” The suit says grazing across 3.4 million acres of public land in the Southwest has imperiled the tortoise, and seeks the removal of livestock from tortoise habitat on public lands. [*GREENLines*, November 10, 1998, from Roger Featherstone]

Turtles to get luxury hotel

On November 12, 1998, Reuters reported that Sol Melia, a Spanish resort company, is going ahead with plans to develop one of the last undeveloped stretches of beach on Mexico's Caribbean coast. X'acel beach, 75 miles south of Cancun, is a likely source of up to 30 percent of the genetic diversity for the green and loggerhead sea turtles. [*GREENLines*, November 16, 1998, from Roger Featherstone]

News! Snakes eat rats!

Reuters news agency reports "Hundreds of snakes are helping out Thai rice farmers in northern Ayutthaya province by eating hordes of rats that have invaded their fields and ravaged grain. Three months ago, a government-owned snake farm released into the fields about 450 nonvenomous snakes of a kind sometimes found there following pleas from area farmers to help them get rid of the rats. The farmers claim millions of rodents in the fields have eaten nearly half of their paddy production. Also, about 22 Thai farmers have died from leptospirosis, a disease that develops from a virus in rat urine and causes infection on close contact. Hundreds of other people have fallen ill from the disease. Now the farmers are claiming an early success in their war against the rats. 'Each villager used to catch about 100 rats per day from the rice fields. But after the snake were released into the area only six or seven rats have been caught' said Anan Nongkrajok, the headman of Klongnoi village in the Baanpeh district. 'Having snakes eat rats in rice fields is the natural way of balancing ecology' said Montri Chiobamroongkiat, a veterinarian at the snake farm who initiated the project. He told Reuters the snakes released into rice fields in the Ayutthaya area could consume more than 18 million rats per year. 'I would like to appeal to the villagers to refrain from killing or eating the snakes. They will decrease damage to the rice fields, halt the spread of leptospirosis and help balance the ecology,' he said." [November 16, 1999, from Joanne Tinsley]

Refugees plunder turtle eggs

A recent story in the *Christian Science Monitor* reported 80 percent of Southeast Asia's green turtle population is being threatened by refugees fleeing into the Philippine islands. The refugees can legally collect the eggs, but the recent influx of refugees has led to 70 percent of the eggs being collected for sale as delicacies in neighboring Malaysia. Egg production in the area has dropped almost 90 percent since the 1950s. [*GREENLines*, December 9, 1998, from Roger Featherstone]

Editorial blasts bison disaster

A recent editorial by Sylvia Torvik in the *Seattle Post Intelligencer* criticized Montana and federal officials for their "numbskullery" in managing bison around Yellowstone National Park. Officials are proposing to build a \$2.1 million quarantine facility to prevent the spread of brucellosis, and "to protect a mere 1,000 head of cattle whose owners collectively . . . pay the U.S. Treasury less than \$5,000 . . . a year to graze their cattle." For more information see <<http://www.wildrockies.org>> [*GREENLines*, January 6, 1999, from Roger Featherstone] See, it's not just reptile issues. Unclear thinking permeates many other wildlife management attempts.

Reptiles seized from enthusiasts

The Western Australian Department of Conservation and Land Management [CALM] seized more than 70 reptiles which were allegedly being held illegally in homes in suburban Perth. *The West Australian* [January 9, 1999] reports: "The people that CALM have targeted are not elusive back-yard operators as portrayed, but are all licensed members of the volunteer 'Snakebusters' team who for many years have been removing dangerous snakes and other reptiles from private and commercial properties around Perth. The 'Snakebusters' list is held by CALM and most calls are referred via CALM. 'Believe it or not, two of the three individuals raided on Thursday night have since had snake removal calls referred to them via CALM,' [said Brian Bush, president of the local herpetological society. He continued,] ' . . . two of the alleged culprits . . . have carried out numerous field surveys of reptiles for CALM and for the West Australian Museum . . . [and] assisted in metropolitan nature reserve surveys. . . . [One is] listed as an official tour leader in CALM's own 1999 Landscape Expeditions Program, where he is described as "an honorary technical officer with CALM. . . ." After many years of lobbying by the Western Australian Society of Amateur Herpetologists (WASAH) and other concerned parties, the Minister for the Environment and CALM publicly acknowledged the inequities of this situation, and set about working on replacement regulations to facilitate private keeping under the current Wildlife Conservation Act 1950. . . . 'People might reasonably ask why the three "culprits" couldn't wait for another six months before getting licenses under the new system,' asks Bush. 'The fact of the matter is that quite a lot of the snakes and other reptiles picked up on "snake-removal" calls are not local animals, but have been brought into the Perth area either from up north or from interstate. This often happens accidentally, with frogs or reptiles getting a ride on a truck or in a fruit-box, but some animals are also brought to Perth by less-dedicated animal-keepers who subsequently release the animal into a garden or nearby bushland. This is bad news from the biological point of view, as the "foreigners" can compete with locally occurring species or may be carrying new diseases or parasites.' Under CALM's snake-removal license, the snakebuster has 72 hours in which to dispose of the animal. For a locally occurring species, such as a dugite or tiger snake, this can be done by releasing the snake into one of the larger suburban bushland areas. 'Nonlocal species pose a real dilemma,' says Bush. 'In most cases, we don't know exactly where these animals come from. And even if we did, who is going to travel to the Pilbara or Kimberley to release a snake or lizard? Perth Zoo is not able to accommodate the numbers of animals involved and CALM itself does not have any facility or procedure in place to deal with these animals. . . . Our other big worry at the moment,' says Bush, 'is the welfare of the 70 animals seized by CALM on Thursday evening. The CALM Wildlife Officers simply don't have the expertise to adequately care for such a large number and variety of reptiles and frogs. Many of them need special diets and have very specific routines that can't be altered without seriously stressing the animals.'" For more information contact Brian Bush, 9 Birch Place, Stoneville Western Australia 6081 <bush@nettrek.com.au> [forwarded by Raymond Hoser]

Put ‘em back!

Mudpuppies may be ugly creatures, but they still deserve to live. That’s why the Michigan Department of Natural Resources urges ice anglers to throw mudpuppies back into the water — not leave them “on ice” to die. In southeastern Michigan, mudpuppies are often caught on Lake St. Clair and the Detroit River. “Sometimes anglers leave mudpuppies on the ice to die, because they feel these salamanders are worthless or even dangerous,” said Gary Towns, DNR District Fisheries Biologist. “But every species, including the mudpuppy, is important in the environment and has a role in the food chain. They are not a throw-away species.” Mudpuppies are native to North American lakes and streams, but their populations have been declining severely in recent decades. They have flattened heads, slimy skin, and four legs with four toes on each foot. They also have bushy, reddish gills behind their heads. Their color varies, and ranges from a brown to a grayish-brown with scattered dark spots or blotches. Those caught by anglers are typically eight to 12 inches long. There is no evidence that mudpuppies damage fish populations. They are not a menace to game fish. Their diet consists of crayfish, snails, insect larvae, worms, and some fish eggs. If a mudpuppy is caught this ice fishing season, the law requires its release back into the water. “Mudpuppies are technically considered salamanders and are protected under the laws that protect salamanders,” said Lori Sargent, DNR Wildlife Division. Mudpuppies cannot be taken out of the waters from November 15 through the last Saturday in May. For more information visit <<http://www.dnr.state.mi.us>> [January 14, 1999, Michigan DNR news release forwarded by Jim Harding]

Sweet home, Kentucky

“A few days before Christmas, Jim Harrison, the director of the Kentucky Reptile Zoo, received an E-mail from Dan Badgley of the Columbus Zoo. Dan had received word that about 260 Asian cobras, *Naja kaouthia*, had been confiscated in Singapore. The snakes were on their way to Canada and Hong Kong where they would have been killed and eaten as a delicacy. However, the Singapore authorities were unable to properly care for the snakes and they needed a place to go. Presently they are being kept in snake bags and offered water daily, but this is hardly a way to maintain them. After some debate, Jim decided that the KRZ would take the snakes. The zoo is a non-profit organization, . . . has an exhibit open to the public and also houses one of the few venom extraction labs in the country. Venom from many species of venomous snakes, including *N. kaouthia* is being used in medical research worldwide. These venoms are being used in research on AIDS, Parkinson’s disease, high blood pressure, cancer and strokes. The zoo supplies these venoms to various researchers. The KRZ is in need of donations to help house and care for these snakes. Therefore, we are reaching out to the herp community. Monetary support as well as used cages and supplies, would be greatly appreciated both by us and our scaly friends. If you are unable to donate anything, support the zoo by dropping by the next time you are in the Kentucky area, and see over 75 species of reptiles on display. I guarantee you won’t be disappointed! Kristen Wiley.” For more information, contact KRZ, 1275 Natural Bridge Road, Slade, KY 40376, (606) 663-0907 <kyreptil@pop.mis.net> [from Lisa Koester]

Action alert

“We have just learned that U.S. Fish and Wildlife Service (USFWS) funding for protection of the Kemp’s ridley nesting beach in Mexico has NOT been approved. It is vital that US funding continues. Kemp’s ridley turtles are the most critically endangered sea turtle and one of the world’s most endangered animals!” Visit <www.earthisland.org> for more information or E-mail <seaturtles@earthisland.org> [forwarded by a concerned herpetologist.]

Cell phone tower considered in Grand Canyon

The Southwest office of the Sierra Club announced [that] the National Park Service is considering placing a cellular phone tower at Hopi Point in Grand Canyon National Park. CellularONE claims existing radio and telephone service is not adequate for the canyon, and wants the tower to increase cellular phone coverage for tourists. Rob Smith, Sierra Club’s Southwest representative said people should, “[G]et in touch with the Grand Canyon, not the office.” E-mail comments to <Barbara_Nelson@nps.gov> [GREENLines, January 26, 1999, from Roger Featherstone] I include this article because in an early CHS *Bulletin*, the debate about whether to dam or not to dam the Grand Canyon was a major story.

Corps’ Everglades plan panned

“ . . . The National Park Service is criticizing the U.S. Army Corps of Engineers’ plan for restoring the Everglades. According to the paper, the Park Service officials believe the plan is inadequate for restoring natural water flows and ‘might worsen problems’ for the Everglades and Biscayne Bay National Park. The Park Service said the Corps’ plan diverts too much water to cities and not enough for the environment. The Corps is supposed to have a restoration plan ready for Congressional approval later this summer, but the criticism is expected to complicate approval.” [GREENLines, January 20, 1999, from Roger Featherstone]

Smuggler off hook

According to the Environmental News Network, a federal judge released a Costa Rican citizen captured smuggling endangered sea turtle meat and eggs into the U.S. The arrest resulted from a sting operation by the U.S. Fish and Wildlife Service at New York’s JFK airport. The Costa Rican could have received up to five years in prison and a \$250,000 fine. [GREENLines, January 19, 1999, from Roger Featherstone]

Thanks to everyone who contributes to this column, and special thanks to those CHS members who include me on their holiday lists. I really enjoyed receiving greetings from: Bill and Jean Peterson, David and Margaret Blatchford, Bill Burnett, Karen Furnweger, Holly Collins, Amy Hixon, Dez and Dave Crawford, the Morton Arboretum, the Education Department at the Field Museum (love that Sue card!), and Ellis Jones. This column apologizes for its absence last month and hopes to receive enough clippings from members to fill a plump column next month! Send whole pages (or clippings with date/publication slug firmly attached) to: Ellin Beltz, 1647 N. Clybourn Avenue, Chicago, IL 60614-5507. Letters only to E-mail <ebeltz@ripco.com> .

Herpetology 1999

In this column the editorial staff presents short abstracts of herpetological articles we have found of interest. This is not an attempt to summarize all of the research papers being published; it is an attempt to increase the reader's awareness of what herpetologists have been doing and publishing. The editor assumes full responsibility for any errors or misleading statements.

GENDER DETERMINATION IN GILA MONSTERS

P. J. Morris and C. Henderson [1998, Bull. Ass'n Reptilian and Amphibian Veterinarians 8(4):4-5] in a single blind study determined the gender of nine adult Mexican beaded lizards, *Heloderma horridum*, and 35 adult Gila monsters, *Heloderma suspectum*, of known sex by means of two-dimensional ultrasound imaging of the ventral tail just distal to the cloaca. In each case subjects could be sorted into two distinct morphologic groups. Group 1 animals had large, variably hypoechoic, paired soft tissue structures in the ventral aspect of the tail spanning 2 cm distal to the vent, while the distal tail lacked these structures. Group 2 animals lacked this characteristic altogether, giving the ventral tail a much more consistent ultrasonic complexion along the entire length. The most logical conclusion for this difference was the presence of paired hemipenes in group 1 animals. Using this premise, subjects in group 1 were declared males, while group 2 animals were declared females. The predictions matched the known sexes of each individual in every case for adult lizards. One juvenile Gila monster could not be accurately sexed based on this technique. From these data the authors conclude that ultrasound imaging of structures in the proximal 2 cm of the tail provides a noninvasive and accurate means of determining gender in adult Gila monsters and Mexican beaded lizards.

RATTLESNAKE HARVESTS IN FLORIDA

J. E. D. Berish [1998, J. Herpetology 32(4):551-557] gathered information regarding the harvest of eastern diamondback (*Crotalus adamanteus*) and timber (*C. horridus*) rattlesnakes from commercial dealer reports, phone interviews with dealers and collectors, and examinations of 714 harvested rattlesnakes. Many individuals killed and sold rattlesnakes in north Florida, but relatively few sold snakes repeatedly, and most brought in one snake per visit to a dealer. Collection occurred primarily during the spring, summer, and fall. Most of the 98 interviewed collectors opportunistically killed rattlesnakes on roads, in yards, and, less commonly, in woods; only five indicated that they actively hunted for rattlesnakes. Many interviewees indicated that they would kill rattlesnakes that they encountered, especially near human habitations, regardless of any potential monetary gain. Eighty-four percent of the 714 rattlesnakes examined at a north Florida skin processing facility were *C. adamanteus* and 16% were *C. horridus*. Sex ratios were skewed towards males in both species. Mean snout-vent lengths for males and females were comparable, but males attained greater maximum snout-vent lengths. Twenty-nine percent of females in both species were reproductively active. Mean litter size was 13.8 for 27 *C. adamanteus* and 10.6 for seven *C. horridus*. Snout-vent lengths of the smallest mature females were 109.3 cm for *C. adamanteus* and 109.9 cm for *C. horridus*.

MINUTE MEXICAN PLETHODONTIDS

J. Hanken and D. B. Wake [1998, Copeia (2):312-345] note that minute plethodontid salamanders, genus *Thorius*, are far more diverse taxonomically than has been recognized previously. They assign populations of these salamanders from the Mexican states of Veracruz and Puebla to 10 species, five of which are described as new. Combinations of morphological and allozymic characters are used to sort the species and to make initial assessments of relationships. Valid existing names include *Thorius pennatulus*, *T. troglodytes*, *T. dubitus*, and *T. schmidtii*. *Thorius narismagnus*, from the Sierra de Los Tuxtlas, which previously was considered to be a disjunct subspecies of *T. pennatulus*, is elevated to species rank. *Thorius maxillabrochus* is treated as a subjective junior synonym of the sympatric *T. schmidtii*. New taxa include *Thorius lunaris*, *T. magnipes*, *T. minydemus*, *T. munificus* and *T. spilogaster*. All 10 species can be distinguished by morphological characters, but the distinctiveness of the taxa is bolstered by allozymic characters and by extensive sympatry. As many as three, and possibly four, species occur in sympatry, with some evidence of segregation by microhabitat (arboreal vs terrestrial). Adult body sizes span the range known for the genus, from very small in *T. pennatulus* (maturing at < 16 mm standard length) to large in *T. lunaris* (adults reaching > 31 mm). Collectively these species display a wide elevational distribution, from less than 1000 m (*T. pennatulus*, *T. narismagnus*) to more than 3000 m (*T. lunaris*, *T. spilogaster*). Discovery of these new species adds to the rich herpetological diversity of east-central Mexico and underscores its importance as a principal center of radiation of tropical plethodontid salamanders.

AGILE FROG CONSERVATION

R. C. Gibson and M. Freeman [1997, Dodo, J. Wildl. Preserv. Trusts 33:91-104] note that the agile frog, *Rana dalmatina*, enjoys a wide distribution throughout much of southern and central Europe, but is found in only a few northern locations, including the island of Jersey in the English Channel. The frog is not found anywhere else in the British Isles and may soon be lost from Jersey as populations have been declining rapidly for a number of years. Recent investigations of their historical strongholds suggest that the species is reduced to a single fragile population at L'Ouaisné Common. A collaborative project involving the Jersey Wildlife Preservation Trust Herpetology Department, States of Jersey Planning and Environment Committee Environmental Services Unit and the Société Jersiaise Zoology Section has led to the establishment and maintenance of captive breeding colonies, investigation of water quality and other environmental factors island-wide, and the release of captive-bred and captive-reared tadpoles and frogs into regularly monitored locations.

QUALITY OF FOOD PLANTS FOR DESERT TORTOISES

K. A. Nagy et al. [1998, J. Herpetology 32(2):260-267] determined digestibilities of dry matter, energy, water, and nitrogen for four foods of desert tortoises (*Gopherus agassizii*) that were kept individually in outdoor pens where food intake and feces output could be measured quantitatively. Two native plants, the forb *Malacothrix glabrata* and the grass *Achnatherum (Oryzopsis) hymenoides*, and two exotic plants, the forb *Erodium cicutarium* and the grass *Schismus barbatus*, were collected in the field during the seasons that wild tortoises consumed them (spring for the forbs, summer for the then-dead and dry grasses), and were then offered to the penned tortoises. The digestibilities of the nutrients in the two forbs were similar, ranging from 63 to 70% for dry matter, 69–73% for energy, 72–79% for nitrogen, and 70–75% for water. Which forb was the more nutritious depends on what determines feeding rate (appetite) in tortoises. If tortoises eat to obtain a given volume of food (“full stomach”) daily, then the exotic forb provides significantly more digestible energy and nitrogen, but if tortoises eat to obtain a given amount of digestible energy (“meet energy needs”) daily, then the native forb provides significantly more nitrogen and water. The dry matter and energy digestibilities of the two grasses were much lower than the forbs, but were similar to each other, ranging from 46 to 50%. However, both grasses provided little or no nitrogen, and the tortoises lost more water than they gained while processing grasses. The type of food plant (forb or grass) and its phenological stage, rather than its geographic origin (native or exotic), best predicted its nutritional value.

MIDWIFE TOADS AVOID CHEMICAL CUES FROM SNAKES

L. Schley and R. A. Griffiths [1998, J. Herpetology 32(4): 572-574] investigated whether naive, post-metamorphic Mallorcan midwife toads, *Alytes muletensis*, are able to avoid substrates marked by chemical cues from *Natrix maura*, a snake species thought to have been introduced to the island of Mallorca about 2000 yr ago. Two experiments were performed, both using the same 55 captive-born toads that had never been exposed to any predators. In the first experiment individual toads were placed into plastic containers that offered a choice of two substrates: half of the box was lined with two pieces of paper towel soaked in aged tapwater (control treatment); the other half was lined with two pieces of paper towel that had been conditioned by *N. maura*. Water content and visual cues on both sides of the box were similar. In the second experiment the control was replaced with two pieces of paper towel soaked with water in which *Xenopus laevis* toads had been kept. In both experiments the midwife toads showed a significant preference for the side of the box that was not snake-conditioned. This behavior cannot be explained as simple avoidance of novel stimuli, as the toads preferred a substrate impregnated by *Xenopus* cues over one conditioned by snakes. This suggests that the behavior is adaptive, and that in the wild the toads may be able to detect and actively avoid sites used by predatory snakes.

DO HOGNOSE SNAKES SNORE?

B. A. Young and J. Lalor [1998, Amphibia-Reptilia 19(4): 407-418] note that the eastern hognose snake, *Heterodon platyrhinos* (= *platirrhinos*), normally produces sounds as one part of its elaborate defensive behavior. This species has a distinctive quadriphasic sound, reflecting the underlying triphasic ventilatory pattern of snakes. *Heterodon* produces sound during both inhalation and exhalation; in both cases the sounds span a broad frequency range (from approximately 1,000 to 11,000 Hz) with frequencies below 3,500 Hz having higher amplitudes. Simultaneous sound production and deflection of a strain gauge mounted over the external nares of unrestrained *H. platyrhinos* provides the first experimental evidence for sound production through the nasal passageway in snakes.

THE LAMPROPELTIS MEXICANA COMPLEX

G. Hilken and R. Schlepper [1998, Salamandra 34(2):97-124] report on the evolution, ecology, taxonomy, husbandry and captive breeding of the *Lampropeltis mexicana* complex. They regard the following species as representatives of this complex: *L. mexicana*, *L. alterna* and *L. ruthveni*. The authors judge *L. m. mexicana*, *L. m. greeri*, *L. m. thayeri* as well as *L. a. alterna*, and *L. a. blairi* to be separate subspecies. They note that relationships within the genus *Lampropeltis* are difficult to explain using the biological species concept; some representatives of *Lampropeltis* hybridize across all species borders. Possibly *L. mexicana*, *L. alterna* and *L. ruthveni* just belong to a single superspecies. Distribution, habitat and climatic demands are described for each of the species or subspecies dealt with. The authors suggest some rules for successful breeding, rearing, and maintenance of these kingsnakes. Breeding data for the last six years are described and evaluated statistically. [Article in German]

KEMP'S RIDLEY NESTING PHYSIOLOGY

D. C. Rostal et al. [1997, Chelonian Cons. and Biol. 2(4):538-547] studied the nesting physiology of Kemp's ridley turtles, *Lepidochelys kempi*, at Rancho Nuevo, Tamaulipas, Mexico, from 1988 to 1990. Female serum testosterone and estradiol levels were observed to decline over the course of the nesting season in a manner similar to that observed in green turtles, *Chelonia mydas*, and loggerhead turtles, *Caretta caretta*. Female serum progesterone levels did not fluctuate over the course of the nesting season. Ultrasonography was also used to monitor ovarian condition during the 1990 nesting season and reproductive condition was correlated with plasma testosterone levels. Vitellogenesis is completed prior to the beginning of nesting by females at the beach. Follicle size was not correlated with female size. Serum testosterone is a useful predictor of nesting periodicity in *L. kempi*. Based on the physiological data, the authors estimate *L. kempi* nests approximately three times per season. This supports earlier reports that the nesting population at Rancho Nuevo has been significantly overestimated in past years and that *L. kempi* may be more critically endangered than previously thought.

THE FROG GENUS *OTOPHRYNE*

J. A. Campbell and B. T. Clarke [1998, *Herpetologica* 54(3): 301-317] note that *Otophryne* is the most distinctive of the New World microhylid genera. The unusual features of this genus are such that it has been placed in a monotypic subfamily Otophryninae. These features include a large eye, a large tympanum, a diurnal activity pattern, and a fossorial lifestyle in the adult. The tadpole is unlike any of the other four generally recognized anuran larval types. Until recently, *Otophryne* was known from only about a dozen individuals from widely scattered localities. These specimens were placed previously in a single species, *O. robusta*, including two specimens from Chimantá-tepui, southern Venezuela, which were described as a separate subspecies, *O. robusta steyermarki*. Both taxa are from upland areas (tepui) associated with the Guianan Shield. The authors examined the types of these two taxa as well as recently collected material. Based on this examination, they consider *O. steyermarki* to be a distinct species. The study also revealed the existence of a third, more widespread species with a lowland distribution, which the authors named *Otophryne pyburni*, in honor of William F. Pyburn whose field work in Colombia secured most of the material of this new species. The authors provide diagnoses for the three species and a description of the new species from the tropical forests of central cis-Andean South America. *O. pyburni* previously was reported in the literature as *O. robusta*, from which it differs in a number of characteristics. Features distinguishing the three species of *Otophryne* include color pattern of the dorsum, thigh, and groin; presence or absence of pale glandular ridges on the limbs; and extent and development of lateral fringes and webbing on the toes as well as the morphology of the pharyngeal folds. A summary of the biology of *Otophryne*, based primarily on published accounts, including habits and habitats, eggs and tadpoles, cytogenetics and distribution, is provided.

KEMP'S RIDLEY TAGGING STUDIES IN FLORIDA

J. R. Schmid and W. N. Witzell [1997, *Chelonian Cons. and Biol.* 2(4):532-537] captured and tagged subadult Kemp's ridley turtles (*Lepidochelys kempi*) at Cape Canaveral, Florida, from 1986 to 1991 ($n = 113$) and at Cedar Key, Florida, from 1986 to 1995 ($n = 251$). Subsequent recapture data at Cape Canaveral ($n = 12$) and Cedar Key ($n = 24$) were combined and von Bertalanffy growth equations were fitted with respect to recapture interval duration. Asymptotic carapace length was either underestimated (Cape Canaveral) or overestimated (Cedar Key) for each source database when compared to the known mean length of nesting females. Differences in asymptotic length estimates were attributed to differences in intrinsic growth rates and the inverse correlation of these two parameters. The von Bertalanffy equation for all recaptures in the combined database yielded age to maturity estimates between 8 and 13 years, based on the minimum and mean carapace lengths of nesting Kemp's ridley turtles. A duration of approximately 8-9 years was calculated for the coastal-benthic, subadult stage of development. Recapture data for adult-size turtles are needed to increase the precision of Kemp's ridley turtle growth models.

A NEW CRYPTIC SPECIES OF DENDROBATID

C. W. Myers et al. [1998, *American Museum Novitates* 3238] describe *Epipedobates simulans*, a new species of dendrobatid poison frog from humid forest at the base of the eastern Andes (400-600 m elev.) in the upper Madre de Dios drainage of southeastern Peru. It is very similar to *Epipedobates petersi* (Silverstone), a composite species that included specimens of *E. simulans* in the type series. Although similar in color and morphology, these species have allopatric distributions and very different vocalizations. The advertisement call of *Epipedobates petersi* is shown to be extraordinarily variable. The call may be produced in trains of single, double or triple notes, with occasional groups of four notes, all at a frequency below 4000 Hz. The call of *Epipedobates simulans* is a continuous train of single, well-spaced notes given above or mostly above 4000 Hz. *Epipedobates simulans* is geographically closer to *E. macero* Rodríguez and Myers, which also has been confused with *E. petersi*. The range of *E. macero* is extended northward from the Río Madre de Dios basin to the upper Río Purús near the Brazilian border.

A NEW SPECIES OF TREEFROG FROM SOUTH INDIA

I. Das and M. S. Ravichandran [1998, *Hamadryad* 22(2): 88-94] describe *Polypedates pseudocruciger* from southern Tamil Nadu State, southwestern India. The new species is closely related to *P. cruciger* Blyth, 1852, from the mid-hills and low country of Sri Lanka, from which it can be differentiated in showing a obtuse cutaneous spur on heel (vs absent); skin of forehead free (vs co-ossified to the frontoparietal and squamosal bones); toe I webbing between distal and distal, subarticular tubercles; and tympanum diameter over 80% (vs less than 65%) diameter of orbit. Because of earlier attempts in the literature to synonymize *Polypedates* under *Rhacophorus*, the authors compare the new species with members of both these genera from southwestern India and Sri Lanka.

FECUNDITY OF DESERT TORTOISES

J. M. Mueller et al. [1998, *J. Herpetology* 32(3):313-319] determined, using X-rays, the annual fecundity of desert tortoises, *Gopherus agassizii*, during 1993-1995 at Yucca Mountain, Nevada. The smallest tortoise to reproduce was 209 mm carapace length (CL); 11 smaller tortoises did not reproduce. The mean age of first reproduction was estimated to be 19-20 years. Clutch size and annual fecundity were related to female size, but annual clutch frequency was not. Clutch size ranged from 1 to 10 eggs; annual clutch frequency ranged from 0 to 2. Mean clutch size of tortoises with a single clutch was 0.9 eggs larger than that of tortoises with two clutches. Annual fecundity ranged from 0 to 16 eggs. Predicted annual fecundity was three eggs for a 208 mm CL tortoise and increased by one egg for each 7 mm increase in CL. Annual fecundity of tortoises in this study was compared with that of tortoises studied in Goffs, California, during 1983-1985. The regressions of fecundity on female size had similar slopes, but tortoises at Goffs produced an average of 4.5 eggs more than tortoises of the same size in this study. Tortoises at Goffs, however, were significantly smaller than tortoises in this study.

A NEW SPECIES OF MADAGASCAN TREEFROG

D. Vallan et al. [1998, *Amphibia-Reptilia* 19(4):357-368] describe *Boophis lichenoides*, a new anuran species from the rainforests of eastern Madagascar. This species differs from other *Boophis* by the presence of lateral dermal fringes on the arms, legs and lower lip, and its lichen-like dorsal coloration. It is included in the *B. tephraeomystax* group due to several morphochromatic characters. Tadpoles probably belonging to this species have a peculiar coloration: black with a bright yellow transverse stripe on the body and a yellow spot at the tip of the snout. Behavioral observations support the assumption that frogs of this species probably spend the day on branches covered with lichens. A comparison with other Madagascan amphibians and reptiles with dermal fringes is provided.

FLATTENED MUSK TURTLE STATUS

K. A. Bailey and C. Guyer [Chelonian Cons. and Biol. 3(1): 77-83] compared the demography of the flattened musk turtle, *Sternotherus depressus*, among sites differing in degree of human impact and among this and previous demographic studies. Sites designated as impacted due to increased sedimentation, algae, and turbidity had lower rates of turtle capture, adult-biased size distributions, and decreased parasitism by the leech *Placobdella parasitica*. Sex ratio, shell damage, and relative body mass did not differ significantly among sites. Comparison of demographic studies since 1981 revealed a consistent decline in rate of turtle capture at five of the six sites investigated, a consistent decline in ratio of males to females, and a decline in frequency of large individuals. These results indicate that population declines have continued, even at sites considered relatively pristine, as a result of insufficient recruitment and/or illegal collection. The authors recommend the continued protection and monitoring of *S. depressus* populations and water quality within the Black Warrior River Basin of Alabama.

PREY DISCRIMINATION IN A MEXICAN LIZARD

W. E. Cooper, Jr., et al. [1998, *Herpetologica* 54(3):409-413] studied the ability of the crevice-dwelling Mexican lizard *Xenosaurus platyceps* to discriminate prey chemicals by tongue-flicking cotton-tipped applicators bearing cricket surface chemicals, cologne (pungency control), and deionized water (odorless control). When tested outside crevices, juveniles tongue-flicked at higher rates in response to prey chemicals than to control stimuli, but adults did not tongue-flick at all. When tested later in crevices, adults also tongue-flicked at higher rates to the prey chemicals than to controls. This suggests that defensiveness in the presence of an experimenter, a context inappropriate for feeding, or both may have inhibited tongue-flicking in adults outside crevices. The authors discuss implications for interpretation of swab tests when no significant differences occur. Prey chemical discrimination occurs in all four families of anguimorph lizards tested to date (*Xenosauridae*, *Anguidae*, *Helodermatidae* and *Varanidae*), strengthening the hypothesis that this ability is plesiomorphic in Anguimorpha.

ALLIGATOR SNAPPING TURTLES IN NORTHEASTERN ARKANSAS

S. E. Trauth et al. [1998, *Chelonian Cons. and Biol.* 3(1):64-70] studied alligator snapping turtles (*Macrolemys temminckii*) in northeastern Arkansas from August 1995 to July 1997. A total of 352 trap nights was conducted in three creeks (Dota, Salado and Village). Turtles were weighed, measured, implanted with PIT tags, and released at the site of capture. Population sampling was performed primarily in Salado and Village Creeks, whereas Dota Creek was used mostly for an assessment of turtle movements. The largest population of turtles ($n = 52$) was found in Salado Creek in Independence County, a turbid, steep-walled, meandering, mostly lowland creek. Village Creek in Jackson County, a shallow, bottomland creek, yielded a total of 34 turtles. Both creeks had previously been subject to commercial turtle trapping. The observed adult sex ratio was 1:1 from all localities, but favored males in Salado Creek. Curved carapace length from all localities averaged 259.8 mm for subadults ($n = 62$), 446.3 mm for adult males ($n = 19$), and 372.1 mm for adult females ($n = 17$); turtles from Salado Creek (273.3 mm) were significantly larger than those from Village Creek (273.3 mm), though there were no significant differences when comparing subadults or adults. Eleven turtles were recaptured in Salado Creek. Turtles moved both upstream and downstream with a maximum recorded distance of 1.8 km. Two turtles, monitored with radio transmitters in Dota Creek during the winter of 1996-97, revealed differing vagilities. Overharvesting presumably contributed to the observed size-class differences.

GECKOS IN FRAGMENTED HABITAT

S. D. Sarre [1998, *J. Herpetology* 32(2):153-162] notes that predicting the effects of habitat fragmentation on the demographic characteristics and habitat use of a species is critical for managing that species in fragmented habitat. In contrast to other geckos, *Gehyra variegata* exhibits a high level of occupancy in remnant habitat in the Western Australian wheat-belt. In this study, the author compares the population characteristics of *G. variegata* in 12 smooth-barked *Eucalyptus* woodland remnants with those in similar woodland communities in three nature reserves. Population sizes in the remnants ranged from 11 to 545 and were highly correlated with remnant size while sex ratios and age structure were reasonably consistent among remnant and nature reserve populations. These data suggest that populations are most affected by habitat or characteristics associated with habitat such as food and shelter availability and are inconsistent with stochastic effects associated with small population size. Habitat use varied markedly between remnant and nature reserve populations, with the lizards largely confined to logs or eucalypts in habitat remnants but using shrubs in the nature reserves with high frequency. This indicates that habitat change has caused *G. variegata* to alter its habitat usage and emphasizes the value of being able to occupy a wide variety of habitats. Comparisons of *G. variegata* populations with other species of geckos suggest that the generalist habitat requirements, stable population structure, and long life expectancy are important contributors to its ability to persist in remnant habitat.

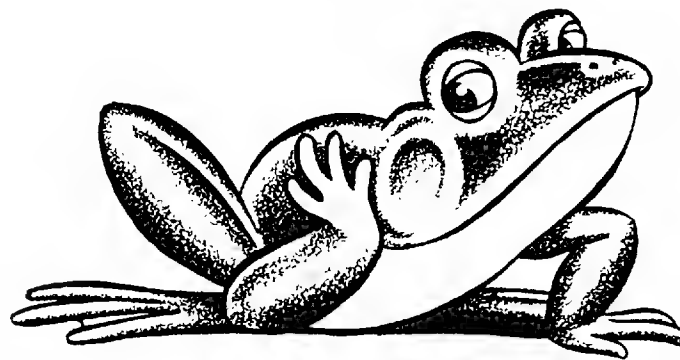
The Tympanum

Dear CHS staff:

I have subscribed to the *Bulletin* for several years now, contributed the occasional article, and enjoyed this periodical's coverage of all things herpetological. That's why I was a little troubled to read in "The Tympanum" in the January 1999 issue that the *Bulletin* has been perceived by some of my fellow members as "too technical" and that it may be headed in the direction of a "general husbandry" publication. With all due respect, I would not welcome this change.

As a biological publication, the *Bulletin* has never been truly technical in the same sense as, say, *Journal of Herpetology* or *Herpetologica*, but it has often managed to bridge the void between the informal newsletters distributed by many regional herp societies and the formal, peer-reviewed scientific journals. And, unlike some of the herp husbandry magazines, the *Bulletin* has remained interesting for many of us who study herps in the field and laboratory, but who are not into keeping them as pets. There are few herp periodicals out there which accomplish this goal of being enjoyable and useful to both the professional and hobbyist. In the time that I've been a subscriber, the *Bulletin* has published many articles on the natural history, geographic distribution, captive care, conservation, and appreciation of amphibians and reptiles, along with book reviews, abstracts of current literature, comic strips, classified ads, and Ellin Beltz's always-enjoyable column on herps in the news. What other periodical does all this? Where else could you find an article on herpetological coins next to an item of scientific interest about reptile behavior or a new geographic distribution record?

The strength of this periodical, and I suspect a reason for its widespread readership, is that it has NOT been oriented towards just the husbandry aficionado. Please don't lose this diversity in scope. Having stated that, I do like the new "Media Notes" page and some of the other proposed ideas mentioned in the January issue, including a husbandry column



for those with that interest. Here's another idea: as a long-distance member of the CHS, I know very few society members personally and little of the history and composition of the group (e.g., percentage of hobbyists vs. biologists). Given the fact that many of us probably don't know much about how the CHS has evolved, how about an article or two on its history and makeup?

Best of luck in 1999!

Respectfully, **James N. Stuart, Museum of Southwestern Biology, University of New Mexico, Albuquerque, NM 87131. E-mail: <StuartJN@unm.edu>.**

Dear Lisa:

I am a neophyte as most things go in this herp society. I have been tinkering with reptiles/amphibians since I got out of school, but pretty much learn as I go from owners who are willing. I have attended quite a few of Dr. Doug Mader's lectures over the years, try to read books, and articles when I can.

I was gazing through the *Bulletin* and came across your plans for the future. Just wanted to say I think things sound GREAT—I must admit, the *Bulletin* has been pretty worthless to an amateur and most of my single-herp-owning clientele. A "feature species" article on husbandry, overviews of info, internet sites, and question and answer section would be so much more worthwhile. General meeting reports would be helpful to those of us that can't quite find time to eat/sleep/run the kids all over town, much less make it downtown to the meeting—I wish. . . .

Maybe in my next life. Anyway, thought I would touch base. Thanks for your enthusiasm.

Elise Ciribassi, DVM, Gary at North Vet Center, Carol Stream, IL. E-mail: <DRJDVM@email.msn.com>.

Unofficial Minutes of the CHS Board Meeting, January 15, 1999

The meeting was called to order at 7:50 P.M. Board members Mike Dloogatch, Jennie Picciola, Steve Spitzer, and Don Wheeler were absent.

Officers' and Committee Reports

The minutes of the December Board of Directors meeting were read and accepted.

The Treasurer's report was read and accepted.

Membership: Membership Secretary Gino Martinez reported current membership at 956.

Shows: The Chicago Family Pet Show will take place the weekend of March 19–21. The hours will be Friday 12–6, Saturday 9–6, and Sunday 10–6, at the Arlington International

Racecourse in Arlington Heights. The Warrenville and South Barrington AMC theatre locations will allow the CHS to exhibit reptiles in order to promote the Arlington Pet Show and Reptile Fest. The dates for these will be March 6–7 and March 16–17. For more information contact Jenny Vollman at (708) 973-1649.

ReptileFest: Lori King-Nava reports that the P.E. building at Northeastern is reserved for ReptileFest but the contract still needs to be signed. Also, a great deal of help is desperately needed and would be appreciated.

Picnic: A picnic permit has not yet been secured. The tentative site for this event is the Catherine Chevalier Woods.

Workshops: There will be a parasite class conducted by Cheryl Roge, DVM, at the Grove in Glenview on May 29.

Those who attend will be encouraged to bring fecal samples from their animals.

Field trip: Audrey Vanderlinden suggested the Louisville Zoo for a possible field trip this summer.

Old Business

Ron Humbert recommended that the Salamander Safari be resurrected this spring. He suggested March 27 or 28 as possible dates for this event.

New Business

Handouts distributed by Audrey Vanderlinden included dates for the Board of Directors meetings and "The CHS Into the New Millennium." Some of the aspects discussed were: A new and improved CHS website which would include online memberships and links to other herp-related sites. Exchange membership newsletters and bulletins will be available at the general meetings. A possible "herp open house" where members could show their private herp collections to others. Also, a forum will be conducted at the general meetings to promote more interaction among the CHS members.

Audrey stated that a handout should be distributed at the gener-

al meetings, which would include an evening agenda, a letter from the president and a list of upcoming events.

A suggestion was made to give advance notice of upcoming speakers and include more biographical information about them.

Round Table

Ron Humbert said that he was very glad to see a new spark in the meeting.

Lisa Koester would like a paragraph from all the board members about themselves and their interests.

Lori King-Nava mentioned that Iguana International did this biographical paragraph idea.

Audrey Vanderlinden stated that she is up for the challenge and very excited about accepting the office of president. She promised to work hard and put forth her best effort to lead the CHS into the new millennium. She also thanked everyone for their support.

The meeting adjourned at 9:30 P.M.

Respectfully submitted by the Recording Secretary
Karen Bielski

Letter from the President

Dear Members:

Well, here it is February already. I hope that everyone had a great kick-start to 1999! I know as far as the CHS, we have already implemented a few new and exciting ideas for the coming year. The committees for ReptileFest are well under way and it certainly looks like it's headed for success once again. I cannot stress enough, the importance of ReptileFest and what we offer to the public as a means of education and fun. Your participation in the fest is a great opportunity as a CHS member to talk about the herps we hold near and dear to our hearts and take part in the much needed public education and perception about reptiles and amphibians. Please volunteer your time as well as your animals for this event. We put on such a huge expo and never seem to have enough volunteers. So do your part and have some fun!

We have a new adoptions chairperson for 1999. His name is Rich Crowley. Rich will be taking over for Tonya Maris. I would like to thank Tonya on behalf of the CHS for all her hard and often heartbreaking efforts in finding homes for homeless herps over the past two years. I know that Rich will undoubtedly do his best as well. Rich can be reached at (708) 485-5705. He has a website and E-mail address and that info will be in the upcoming *Bulletins*.

In the coming months at the general meetings, I hope you will all take advantage of the new CHS Reading Table, located in the lobby by our Membership Table. Maybe even start coming early to enjoy reading about what our fellow societies are up to. There is a compilation list of all our exchange newsletters, should you wish to see a certain one. I have been reviewing several other newsletters and have found some very informative stuff amongst them. One in particular is the Pacific Northwest Herp Society Newsletter. The editor is Dr. Douglas Dix, a wildlife toxicologist who has also written articles for *Reptiles Magazine*. Doug is also a personal friend of mine who breeds uromastix (big surprise here, huh?) You will find his editorial column fascinating. We'll also display any and all pertinent herp news and mail we receive for you to read, like information on the new Global Gecko Society. The CHS suggestion box will be at the table as well as event information (picnics, classrooms, field trips, board meeting dates, etc.)

Get your poop samples ready — May 29, 1999, Dr. Cheryl Roge will conduct a herp parasitology class at The Grove in Glenview. Attendance will be limited and information regarding the class will be available at the Reading Table or call me at (773) 836-2477 or E-mail: <uromastica@aol.com>.

Hopefully next month we can talk about the Great Thaw of 1999 and have some interesting tidbits to share, as many of our critters are coming out of brumation and hibernation.

Till then, keep your herps happy and healthy.

Audrey Vanderlinden
President

ReptileFest '99 — Q & A

by Gary Kostka

It's late February, and you're foundering in that bleak psychological abyss that exists between New Year's Eve and Memorial Day. What's a herper to do to vanquish this profound sense of ennui? Why look . . . there's a light on the horizon! Could it be a beacon of hope? . . . A lifeline to mental salvation? Well blow me down, it's the CHS ReptileFest appearing out of the darkness. What better way of extricating yourself from your midwinter funk than by focusing your attentions on what promises to be the most heralded herpetological happening of the current millennium, ReptileFest '99, scheduled for the weekend of May 1-2 at Northeastern Illinois University in Chicago.

If you took part in last year's 'Fest, then you're already familiar with the heady intoxication that can be had through involvement in this ever-growing CHS success story, so I'm sure there's no need to convince you to participate again this year. However, for added incentive let me just say that I recently attended the first planning meeting for ReptileFest '99 and I can report to you without reservation that this year's show promises to be even grander in scale than last year's! Get it? . . . Scale? . . . Reptiles? . . . Oh well. . . . If you missed out on the glory of last year's event (or heaven forbid, the four 'Fests prior to that) then this is definitely your year to take the plunge and experience firsthand the magic and splendor that is ReptileFest.

For those few of you reading this who may know nothing of ReptileFest, I've taken the liberty of answering a few of the questions regarding the show which probably are stirring deep within the recesses of your cerebra at this very moment.

Q. What is ReptileFest?

A. ReptileFest is a yearly event hosted by the CHS at which members are afforded the opportunity of exhibiting their herps to the paying public. It serves as an important source of revenue for the CHS, helping to defray the considerable operating expenses incurred by the Society throughout the course of the year. The show includes a variety of educational exhibits as well as numerous vendors purveying a wide assortment of herp-related merchandise. No animals are sold or traded at the show.

Q. What's in it for me?

A. ReptileFest provides members with the ultimate opportunity to showcase their favorite animals to an enthusiastic and appreciative audience. Not only will people gasp in amazement as they gaze at your cherished charges, they'll be equally impressed with you as you eloquently elaborate upon the finer points of their natural history and husbandry. In the process you'll be helping to dispel much of the myth and misinformation surrounding these creatures as well as promoting the CHS, thus helping it to maintain its position of preeminence among the world's herpetological organizations.

Q. None of my herps are rare or spectacular. Can I still show them at ReptileFest?

A. Absolutely! An animal that may seem commonplace to you will more than likely be considered exotic by most of the visitors to ReptileFest. Even a green anole can be fascinating if set up in a naturalistic and imaginative display. For that

matter, the very animal that you may think of as "run-of-the-mill" might be the only representative of its species at the show, thereby making its inclusion all the more significant. No animal should be thought of as too ordinary to be shown.

Q. My animals are too delicate to be brought out in public. Is there anything else I can do to get involved?

A. There's no limit to what you can do. If you'd like to help out with the planning and implementation of the show, then consider becoming a member of the ReptileFest Committee. If you're keen to help out at the 'Fest itself, there'll be more than enough jobs to occupy a small army of herpers. Whether it's helping out with show set up and breakdown, working security, relieving exhibitors who want to take a break or stamping visitors hands at the entrance table, there's sure to be a job perfectly suited to your particular skills.

Q. I'll only be available for one of the days of the show. Can I still take part?

A. By all means. Ideally, we'd like to have everyone involved in the show (especially exhibitors) be there for both days, but one day of participation is certainly better than not showing up at all. It is important that exhibitors try extra hard to be there on both days so that we are able to feature the same lineup of animals throughout the entire weekend.

Q. I'm not from the Chicago area, in fact I've never been to a CHS meeting. Will I have a problem fitting in?

A. No problem whatsoever. In fact that's one of the greatest reasons why you should take part. As members of the CHS, we all share a common interest in herps which works wonders when it comes to breaking down those awkward social barriers. In fact, along with entertaining and educating the public, the main reason ReptileFest got started in the first place was so that we'd all have a reason to get together and entertain and educate each other. Members from throughout the Midwest and from as far away as California have joined in the fun at past 'Fests. By the time the show's over you'll have made a host of new friends, and I guarantee you'll be chompin' at the bit in anticipation of ReptileFest 2000.

Q. It sounds like the opportunity of a lifetime! Where do I go from here?

A. All of the pertinent details concerning ReptileFest '99 as well as an exhibitor's entry form may be found elsewhere in this month's *Bulletin*. If you wish to exhibit animals you should submit your entry form as quickly as possible, as this will allow event planners ample time to establish a working floor plan for the show. If you have any questions at all concerning ReptileFest '99 or wish to volunteer your services or input, please feel free to contact either of the show's coordinators, Lori King-Nava, (773) 477-3645, or Gary Fogel, (773) 935-6938. They'll be more than happy to hear from you and I'm sure you'll be glad that you did.

So there you have it fellow herpers. A surefire method to shake the midwinter blahs. Set your sights on ReptileFest '99 and get involved. It's hip, it's herps, and it's happening May 1-2.

Advertisements

American Federation of Herpetoculturists: A nonprofit national membership organization of herpetoculturists, veterinarians, academicians and zoo personnel involved in the captive husbandry and propagation of amphibians and reptiles. Membership includes highly acclaimed magazine, *The Vivarium*, dedicated to dissemination of information on herpetocultural accomplishments, herp medicine, breeding and maintenance, field studies and adventures, enclosure design and much more. AFH membership is \$26. Send information requests to: AFH-News, P.O. Box 300067, Escondido CA 92030-0067.

For sale: rats and mice—pinkies, fuzzies and adults. Quantity discounts. Please send a SASE for pricelist or call Bill Brant, *THE GOURMET RODENT*, 6115 SW 137th Avenue, Archer FL 32618, (352) 495-9024, E-mail <GrmtRodent@aol.com>.

For sale: murine-pathogen-free rats and mice available in all sizes, live or frozen: pinkies, fuzzies, crawlers, small, medium and large. Frozen crawler mice in lots of 2000, \$.17 each. Also available, full grown hairless mice. FOB shipping point. Master Card accepted. Call (518) 537-2000 between 8:00 A.M. and 5:00 P.M. or write SAS Corporation, 273 Hover Avenue, Germantown NY 12526 for prices and additional information.

For sale: from **The Mouse Factory**, producing superior quality, frozen feeder mice and rats. New prices, new sizes, and now rats! Our mice and rats are vacuum-packed to greatly extend freezer life by reducing freezer burning and preserving vitamin and nutrient content. We feed our colony a nutritionally balanced diet of rodent chow, formulated especially for us, and four types of natural whole grains and seeds. Mice: pinkies, \$.25; fuzzies, \$.30; hoppers, \$.35; weanling, \$.40; adult, \$.45. Rats: starting with pinks at \$.40 each, to XL at \$1.80 each. Discount prices available. We accept Visa, MC, Discover or money orders. P.O. Box 85, Alpine TX 79831. Call us toll-free at (800) 720-0076 or visit our web site <www.themousefactory.com>.

For sale: from Bayou Rodents, excellent quality feeder mice and rats. Every size available. Pinks starting at \$20/100. Orders are shipped by overnight service Monday thru Thursday. We accept Visa, MasterCard and Discover. For more info, contact Rhonda or Peggy, (800) 722-6102.

For sale: **high quality frozen feeders**. Over a decade of production and supply. Seven sizes of mice available: small newborn pinks up to jumbo adults. Prices start at \$25 per 100. Feeders are separate in the resealable bag, not frozen together. Low shipping rates. Free price list. Kelly Haller, 4236 SE 25th Street, Topeka KS 66605, (913) 234-3358 evenings and weekends.

For sale: Herp bags—colors vary, translucent ripcord nylon, super lightweight, extremely durable construction with hot corners sewn in, double seamed. Custom sizes made upon request. Sizes: 46" × 14", \$7 each; 24" × 12", \$6 each; 24" × 6", \$5 each. Shipping fees, \$1 for first bag, \$.30 each additional bag. Nicole Lechowicz, 2511 S. Illinois Avenue, #104, Carbondale IL 62901, (618) 457-2783.

For sale: **Huge** wooden iguana enclosure, sliding glass doors, light fixtures, logs, decor and more! Makes a happy home for your little green friend, \$250. Call (773) 327-5273.

For sale: wide variety of axanthic patterned, axanthic patternless (and hets for both) trans-Pecos ratsnakes. Some adult hets available as well. Also, milksnakes—Sinaloa, \$30 each; Nelson's, \$35 each; Mexican milks, \$30 each; Pueblans, \$25 each. Arizona mountain kings (all males left), \$45 each; Tarahumara mountain kings, \$75 each; variable kings (*thayeri*), one male buckskin, \$75, others \$45 each; melanistic *thayeri*, \$45 each; San Luis Potosí kings, \$35 each; Mexican black kings, \$15–25 each; desert kings, \$20 each; Pacific striped gopher snakes, albinos, \$40 each, heteros, \$25 each. All animals are '98 hatchlings and eating well. Troy, (573) 642-9422. [MO]

For sale: mated pair of indigo snakes, to Illinois residents only, \$1500/pair; male albino (snow) desert phase California kingsnake, \$150. Dennis, (708) 484-8191.

For sale: Great snakes, great service. Send SASE for list. Applegate, P.O. Box 338, Campo CA 91906, (619) 478-5123. E-mail: <applesnake@juno.com>. Website: <www.applegatereptiles.com> Thank you, call me.

For sale: **Adults:** male het ghost, \$60; black king, \$55; male *thayeri* (milksnake phase), \$100; pair of ball pythons, \$175/pair; Indonesian bluetongue, \$55; *Rhacodactylus auriculatus*, c.b. '98, \$150; *Phelsuma madagascariensis grandis*, c.b. '98, \$20. Flexwatt heat tape, \$2.50/ft, \$5 each connection. Steve Bostwick (515) 274-4580, E-mail <liasis@juno.com>. [IA]

For sale: female Argentine boa, c.b. '97, \$150; pair of Dumeril's boas, c.b. '97, \$525/pair; 4-year-old male Amazon tree boa, \$125; trio of Colombian rainbow boas, ready to breed, \$250/trio; 2-year-old female Hog Island boa, beautiful orange colors, \$250. The Snake Lady, (630) 851-2331 phone, (630) 851-9672 fax.

For sale: single carpet pythons, c.b. 7/98, parents high-yellow and solid jet black, \$200; 50/50 Cal. kings, \$50; female Arizona mountain kingsnake, 2-year-old, outstanding color pattern, \$175. Mark Petros, Strictly Serpents, (847) 854-3259.

For sale: Send SASE to CRC, P.O. Box 0731, Las Vegas NV 89125-0731 for brochures and list of species available. Limited bookings available for guided tours of herpetological collection sites in Nevada. Call/fax (702) 450-0065. URL <http://www.herp.com/crc/> E-mail <crsafety@aol.com>.

For sale or trade: thinning out collection to make room for more arboreals. The following pythons are Tom Weidner stock and are all top-of-the-line specimens; all are being sold at or below what I paid for them: one male and one female bar-neck amethystine pythons, c.h. '97, tame, \$250/pair; two male and one female Malaysian blood pythons, beautiful bright red specimens, c.h. '95, tame, \$250 each; one male and two female Borneo blood pythons, one yellow/gold sides with solid black contrast, other two are "orange-heads," c.h. '95, tame, \$175 each. Also, yellow Amazon tree boas, c.b. '97, screamers, \$125–225. Paul Edwards, Arboreal Ecstasies, (843) 766-2416. [SC]

Free to good home: 7-year-old captive-born common snapping turtle, 13"+, includes tank and accessories. Brian, (773) 275-4716.

Internship: The **Kentucky Reptile Zoo**, a nonprofit organization, is seeking student interns for the 1998 spring, summer and fall seasons. The zoo is an educational exhibit, reptile breeding and venom research facility, located near Kentucky's Red River Gorge and Natural Bridge State Park. The intern will assist in the captive maintenance of the zoo's reptile collection, collect admissions to the exhibit, give interpretive talks and interact with the public, assist with educational outreach programs and perform other duties as assigned. In addition, the intern will be responsible for the completion of at least one research project related to the field of herpetology. The intern will **not be involved** in the handling of any venomous reptiles. Desirable qualifications include a willingness to handle snakes and other reptiles on a daily basis, ability to communicate effectively with people, writing skills, orientation to details, and self-motivation. Students majoring in the biological or natural sciences are preferred. Former interns have arranged for academic credit with their colleges or universities. Benefits include experience with the most extensive and diverse collection of snakes in the area, housing and \$55/week to cover expenses. Personal transportation is recommended. Starting dates are flexible, but a minimum commitment of three months covering SPRING (March–May), or SUMMER (June–August), or FALL (September–November) is required. To apply send a cover letter and resumé to: Kristen Wiley, Internship Coordinator, Kentucky Reptile Zoo, 1275 Natural Bridge Road, Slade KY 40376. Deadlines for applications are: SPRING, February 15, 1999; SUMMER, March 1, 1999; and FALL, June 1, 1999.

Advertisements (cont'd)

Tours: Adventure tours to Madagascar! Join **Bill Love** seeing and photographing fauna and flora, heavily herp-biased, across the world's least known mini-continent. Maximum fun & photo ops assured on every trip. Contact him at: BLUE CHAMELEON VENTURES, P.O. Box 643, Alva FL 33920. TEL: (941) 728-2390, FAX: (941) 728-3276, E-MAIL: <blove@cyberstreet.com>.

Tours: **Road-riding in Costa Rica!** Treat yourself to the trip of a lifetime! Learn about tropical herps, find them, photograph them, see where they live. **Greentracks, Inc.**, offers the best herpetological tours led by internationally acclaimed herpetologists and herpetoculturists. See the Amazon, visit cloud forests, experience the world's greatest rainforest, super sunsets and good company. Call (800) 9-MONKEY.

Video: *Rattlesnake Hunting*, a 60-minute video by a 30-year veteran collector. Don't miss this one! It's as close to being in the field as you can get. (Not a slick commercial production.) Send check or money order for \$19.95 plus \$3 postage & handling to: D. Wheeler, 2705 Sunset Trail, Riverwoods IL 60015. Allow 4-6 weeks for delivery.

Wanted: male Argentine boa, at least two years old. The Snake Lady, (630) 851-2331 phone, (630) 851-9672 fax.

Wanted: unusual/aberrant garter snakes and unusual/aberrant/large rubber boas. Scott, (919) 934-0110, EST. [NC]

Wanted: big-headed turtles; mata mata turtles; Mexican giant mud turtles (*Staurotypus triporcatus*); exceptionally large common snappers (45 lbs. & up); large alligator snappers (over 90 lbs.); spectacled caiman from Trinidad, Tobago and Surinam; dwarf caiman; smooth-fronted caiman; albino turtles (except red-eared sliders). Walt Loose, (610) 926-6028, 9:00 A.M. - 1:00 P.M. or after 11:30 P.M. Eastern Time.

Wanted: Any dinosaur toys or dinosaur-related items for 1999 ReptileFest's new DINO-RAMA exhibit next May 1-2, 1999. Any items to be donated should be brought to any CHS general meeting. Contact: Gary Fogel, (773) 935-6938.



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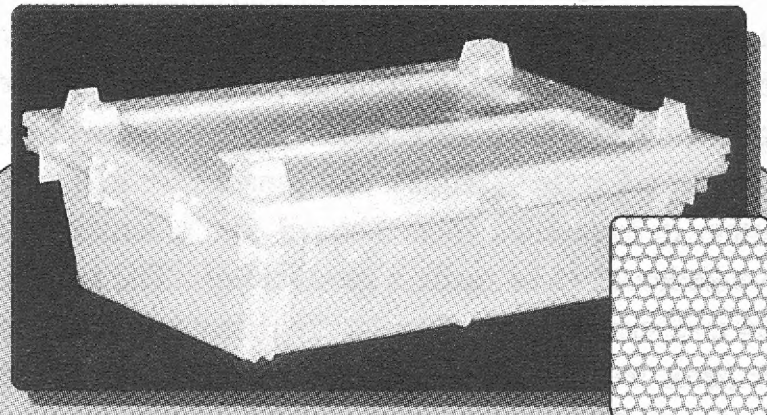
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Line ads in this publication are run free for CHS members — \$2 per line for nonmembers. Any ad may be refused at the discretion of the Editor. Submit ads to: Michael Dloogatch, 6048 N. Lawndale Avenue, Chicago IL 60659, (773) 588-0728 evening telephone, (312) 782-2868 fax, E-mail <MADadder0@aol.com>.

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UPCOMING MEETINGS

The next meeting of the Chicago Herpetological Society will be held at 7:30 P.M., Wednesday, February 24, at the Field Museum of Natural History, Roosevelt Road at Lake Shore Drive, in Chicago. The speaker will be Aaron Hampton, Lead Keeper at the Brookfield Zoo Reptile House. Mr. Hampton will address the "Husbandry and Breeding of Madagascan Leaf-tailed Geckos, Genus *Uroplatus*." Madagascan leaf-tailed geckos are spectacular creatures. They exhibit a host of incredible adaptations, including but certainly not limited to fantastic body shapes, intricate fringes and other skin adornments, and unusual eye coloration.

We are required to use the entrance on the west side of the museum. **We are allowed to use the free parking lot to the west of the museum. Entrance to this lot is from McFetridge Drive, the wide street just to the south, between the museum and Soldier Field.** Public transportation is an option: the Roosevelt Road (12th Street) bus now goes directly to the museum, thus providing a connection with the el and subway. This bus service runs until 11 P.M.

The Chicago Turtle Club

The Chicago Turtle Club will meet on Sunday, February 21, and Sunday, March 14, 1:00 – 3:30/4:00 P.M., at the North Park Village Nature Center, 5801 N. Pulaski, in Chicago. Meetings are informal. Questions, children and animals are welcome. Parking is free and there is no admission. These will be planning meetings for the year – outings, shows and other events. For more information call Lisa, (773) 508-0034, or visit the CTC web site: <<http://www.geocities.com/~chicagoturtle>>.

HERP PARASITOLOGY CLASS

Back by popular demand! May 29, 1999, Dr. Cheryl Roge will conduct a herp parasitology class at The Grove in Glenview. Attendance will be limited and information regarding the class will be available at the Reading Table at our monthly meetings. Further details will be presented here as they become available. This is a terrific opportunity and one which we hope membership will take advantage of.

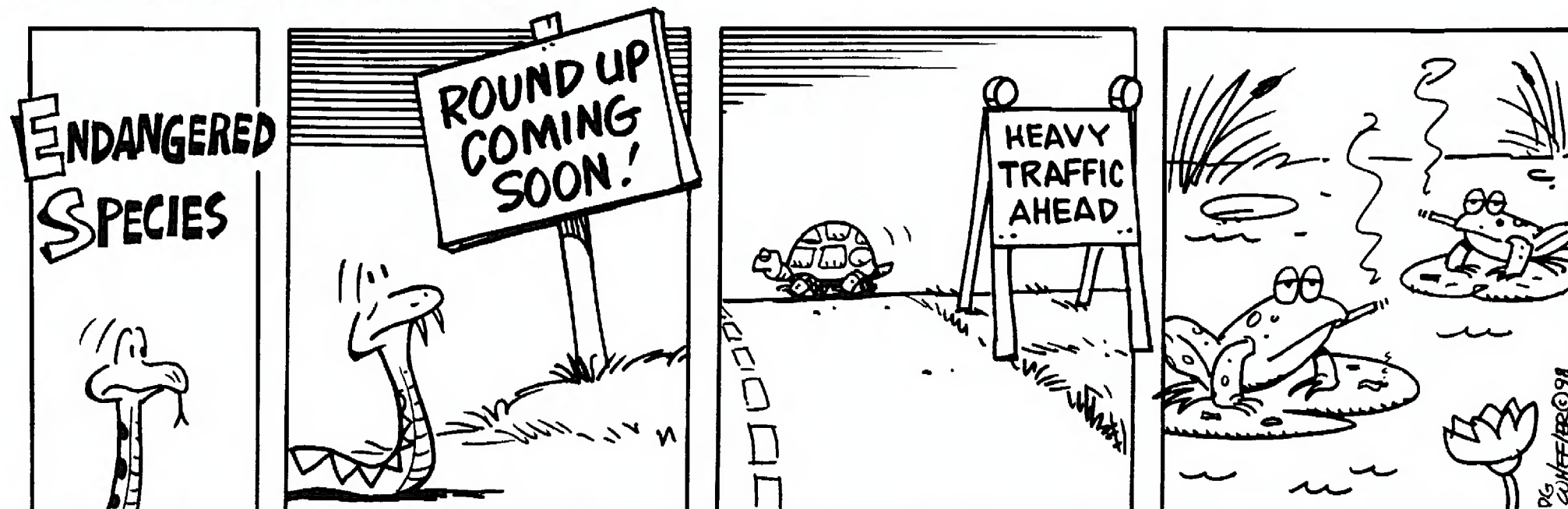
INTERNATIONAL HERPETOLOGICAL SYMPOSIUM—23rd ANNUAL MEETING

The San Diego Zoo and the San Diego Herpetological Society invite you to attend the 23rd annual meeting of the International Herpetological Symposium, July 28–31, 1999, at the Hotel Hanalei in San Diego, California. The preliminary speaker list includes Aaron Bauer, Jerry Conway, Susan Donoghue, Christopher Raxworthy, Bernd Eidenmueller, Jeff Barringer, Bill Love, Tom Mazarlig, Charles Dougherty, Joe Slowinski, Philip Samuelson and Robert Sprackland. Registration is \$125 until July 12; \$150 thereafter. In addition to the daily presentations, events will include a banquet, auction, field trip to the San Diego Zoo and barbecue. For registration and other information contact Stan Draper, P.O. Box 16444, Salt Lake City UT 84116-0444. E-mail: <sdraper@npsp.com>.

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Please let us know in plenty of time of any change in your mailing address. The *Bulletin of the Chicago Herpetological Society* is sent to our U.S. members by bulk-rate third class mail. This means that the U.S. Post Office will not forward your *Bulletin* with the rest of your mail. This is so even if you make a special request that your magazines be forwarded (such a request only applies to second class mail).

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